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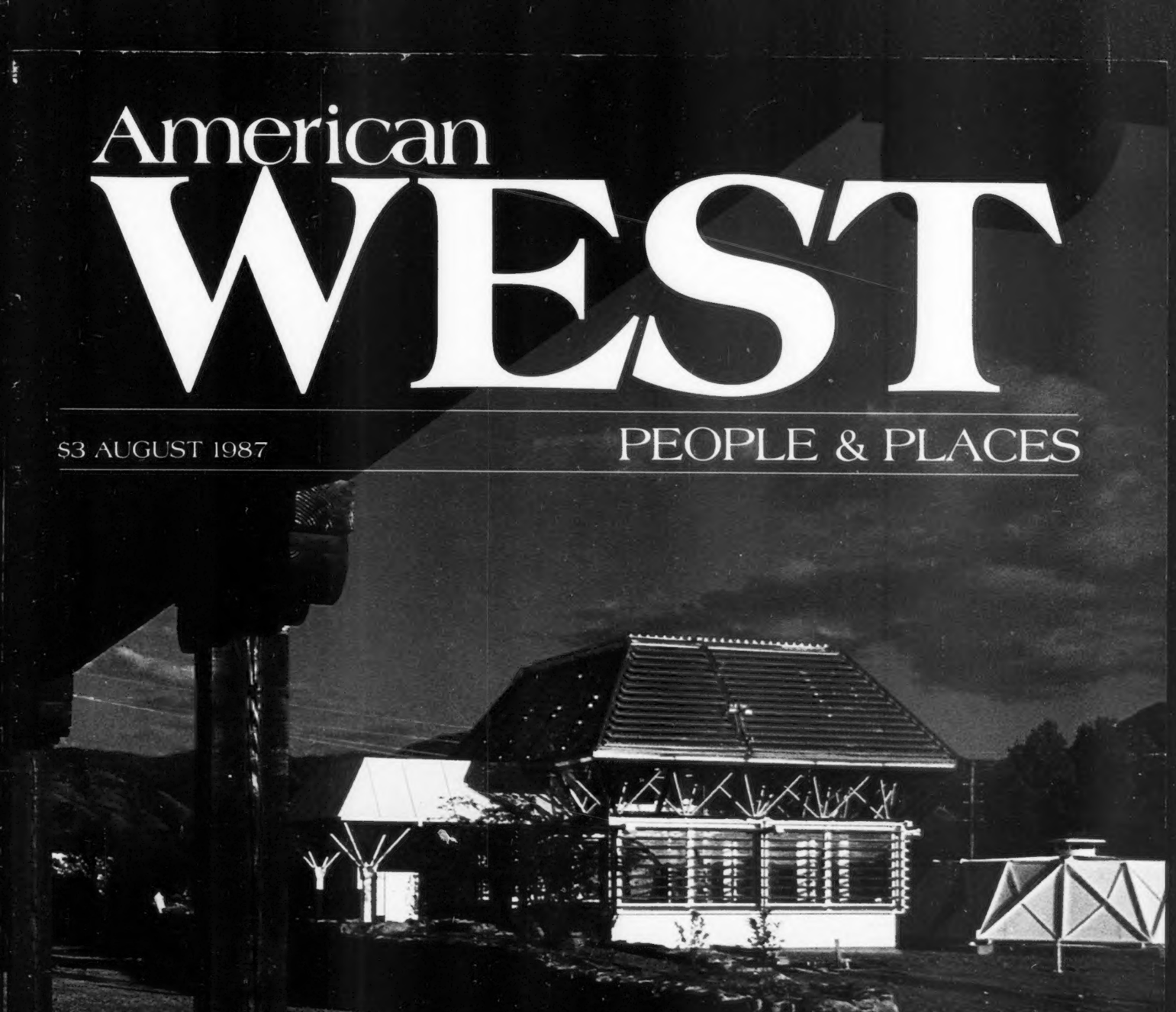

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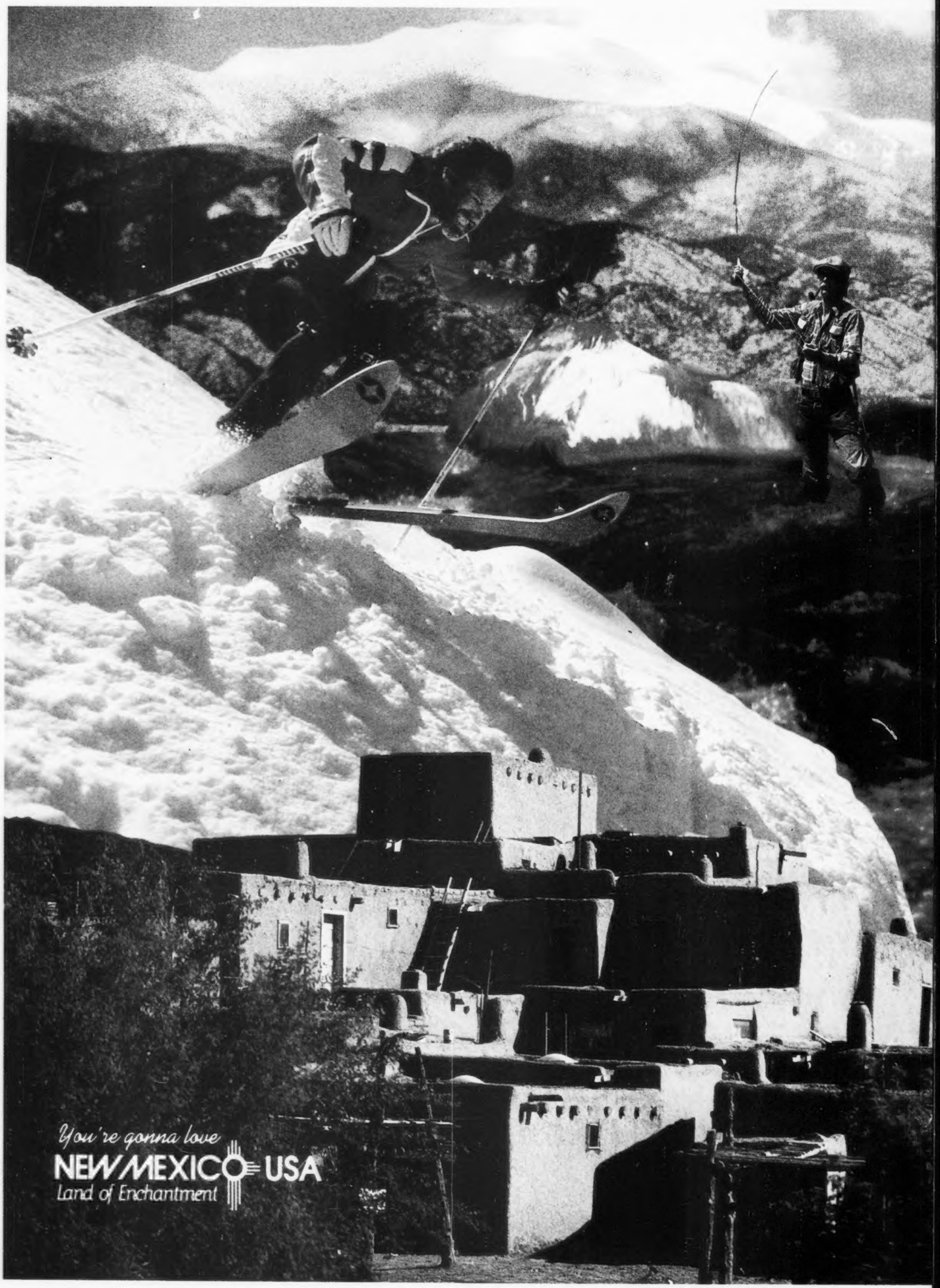
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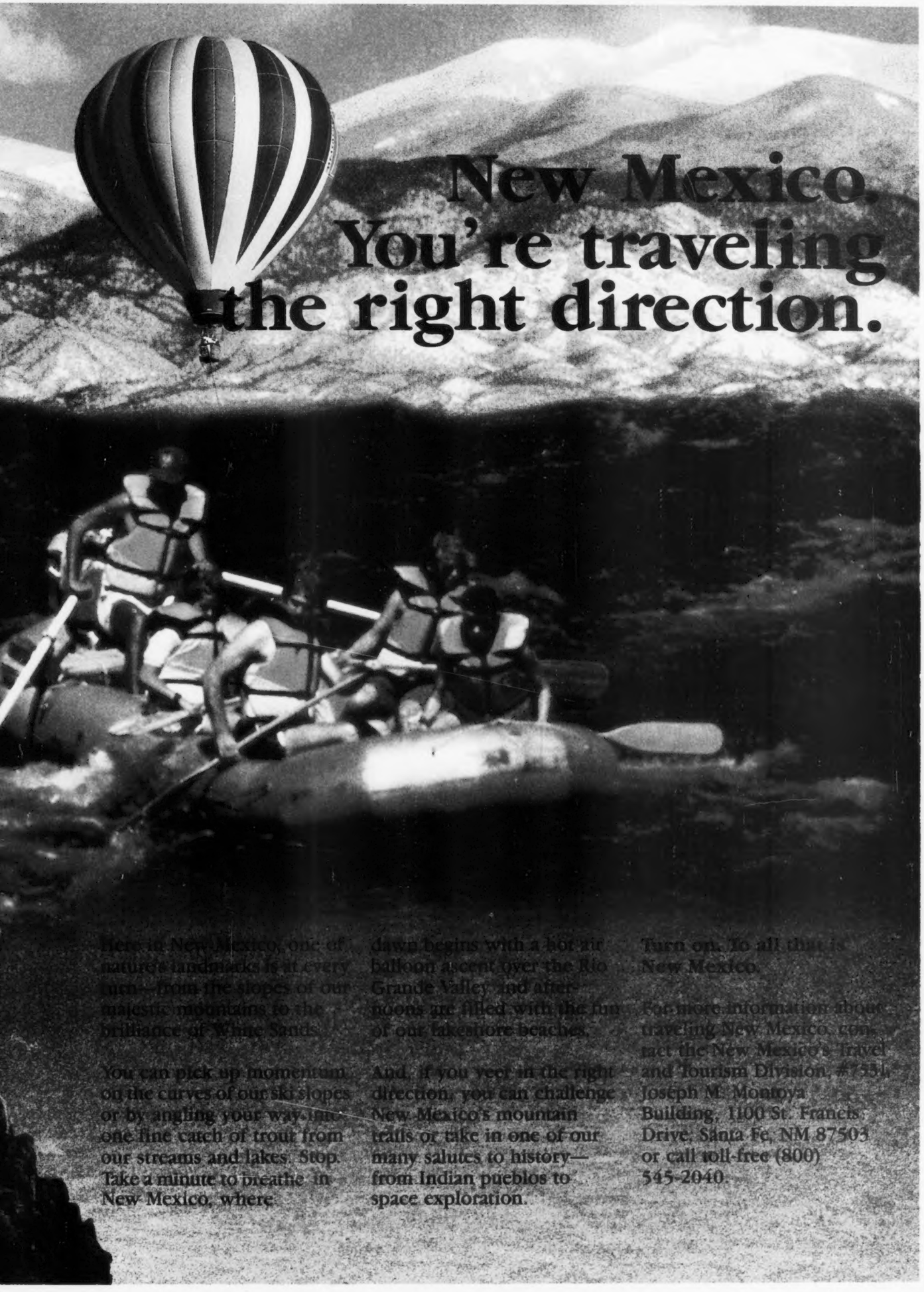

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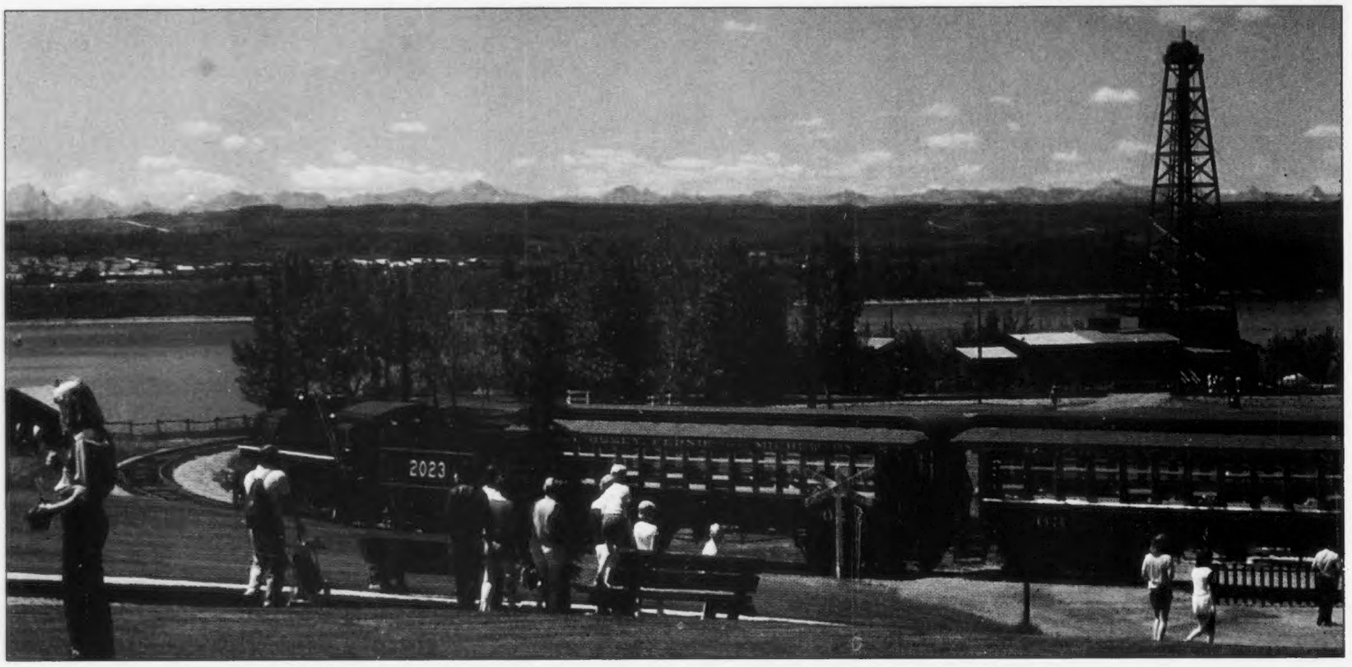

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Cover photo by Peter Menzel

Cover Our cover photograph anticipates a community in outer space. Pictured is a twenty-seven-foot test module for Biosphere II, a large structure being built in southern Arizona as a closed environmental system to enable man to live on other planets.

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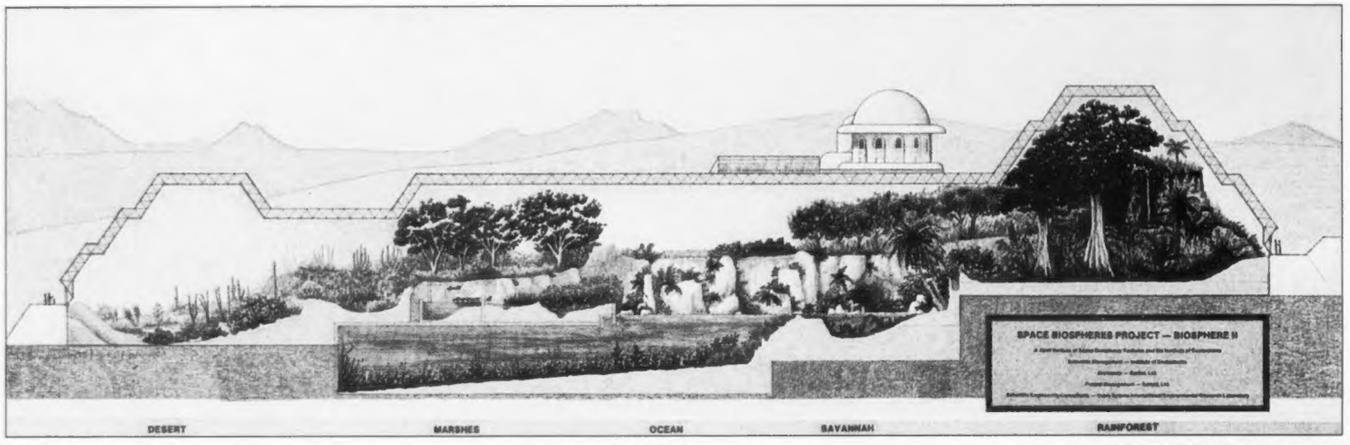

COURTESY SPACE BIOSPHERES VENTURES

Homer will die. Michelangelo will die. Galileo, Leonardo, Shakespeare, Einstein will die, all will die who now are not dead because we are alive, we are thinking of them, we are carrying them within us. And then every single thing, every memory, will hurtle down into the void with us. So let us save them, let us save ourselves. Let us prepare ourselves to escape, to continue life and rebuild our cities on other planets: we shall not be long of this Earth.

— Ray Bradbury

The tired, sweating travelers topped the low ridge and gazed blankly into the flat, broad Salt River Valley below. The relentless Arizona midday sun burned as vicious and hallucinogenic as it does today, searing mind and instinct of man and horse alike. The scouts shaded their eyes and waited for the stragglers to catch up. Their bedraggled, thirsty horses cocked their hooves and loudly snorted trail dust from flared nostrils. Every creature and plant, except those that lay camouflaged and ready to sting with thorn or venom, appeared as shriveled and desiccated as the smoke-dried jerky the travelers carried in their saddle bags.

No one recorded who spotted the Hohokam canals first, or perhaps it was a piece of pottery or a stone tool that suddenly came into focus as one of the party gazed red-eyed at the ground. But as the small band descended into the valley, they found the ground littered with tools of bone and flint, delicately carved effigies, and grinding stones.

In time, more than a thousand miles of carefully conceived ditches were discovered radiating in all directions from the river like a great, life-giving bloodstream complete with main arteries and tiny capillaries threading their way into the contours of the land. The entire system covered an area of some 10,000 square miles in the Salt River Valley and beyond. Some canals were more than thirty feet wide and seven feet deep. Parts of the system extended miles beyond the headgates on the river.

Later, when the new settlers began to build their own irrigation network, they found the ancient system suitable for reuse. Cleared of silt and wind-blown sand, once again the ancient canals slaked the mineral-rich desert with the magic of water. The inhospitable land bloomed and sustained the newcomers just as it had sustained the people who had come and gone before.

The year was 1867, and in recognition of the rebirth of the valley and the land, the place was named Phoenix after the mythical bird that rose from its own ashes.

Today the headgates on the Arizona, Utah, Nevada, and California irrigation systems (the dregs going to Mexico) release water over thousands of miles from the Colorado River and all its tributaries. Atomic and coal-burning power plants and great mountain-leaping siphons pump water up and down valleys, over and under and around whole mountain ranges, under roads and intervening rivers that get in the way. Man's gluttonous use of desert water goes far beyond his basic food needs. His thirst calls for filling thousands of swimming pools, watering golf courses, and forcing the desert to blossom with such wet-country trees and water-squandering crops as pecans and alfalfa. And when and where the Colorado and its tributaries can't produce sufficient water, great wells are punched hundreds of feet into fossil aquifers to suck up more water. If the Hohokam had known what we know today, they'd either still be around, or they wouldn't have left enough for the pioneers to start over with.

And here we are getting ready to leave these valleys again — perhaps for the last time. The next time pioneers ride into uninhabited southern Arizona valleys — some hundred-thousand or several hundred-thousand years from now — maybe they'll find the remains of Biosphere II (our cover and feature story this issue). The travelers who return (assuming there's something to return to) will marvel at the remains of this quaint 1987 man-made terrarium. A thing built to carry us on one more "westering" adventure. A test escape-capsule from a planet soon to be consumed just as surely as man eats the apple and throws away the core.

Some of the brightest-eyed, idealistic, naive scientists are busy at work today outside Tucson on this marvel of modern technology.

But busy, not as they say, preparing for a better day on earth, but preparing for the great leap into the last place mankind will have to leap — outer space.

The Hohokam built the first biosphere in these valleys. Their experiment prospered for a thousand years with the help of the ingenious canals we've described, and probably collapsed when the population outran the hydrologic technology. Those of us in southern Arizona today are living in the second biosphere — an on-going experiment that began with the pioneering people of just over 120 years ago who cleared the Hohokam canals and began again with superior tools (not necessarily a superior technology). Today's biosphere (Biosphere III as it should properly be numbered) is the work of well-meaning, well-paid scientists.

They speak of their multi-million dollar, grand experiment as helping mankind "look inward and understand the earth." However, man — real flesh and blood man — will actually continue to look where he has always looked: outward for food, sex, work, comfort, and adventure. (Actually that's what the scientists are doing, too, but like many ministers they imagine they're doing something else — preferably with the word "mankind" attached to it.)

Biosphere II, or III, depending on your point of view, won't do anything to change man, or to help mankind (and you can't have one without the other) improve his attitude toward this planet. The domes of glass and stainless steel abuilding outside Tucson, Arizona, are really just a fresh horse to ride out of this spoiled valley on. A vehicle to look over the next ridge for the next clean piece of land. A kind of twentieth century, Swiftian *Modest Proposal* to escape our penchant for trashing one place and looking over the hill, across the ocean, out West, and now to outer space for an unspoiled place for a new beginning.

If it makes the know-not-what-they-do scientists feel good to say they're spending all this money to build something to preserve the earth for the good of all the apple-eaters, I suppose there's no harm in it.

I doubt any of the readers of this essay will be aboard the first wagon train headed up, but tell your grandchildren or great-grandchildren it's gittin' time to saddle up. The Biospherians already have one foot in the stirrup.

Tom Pew

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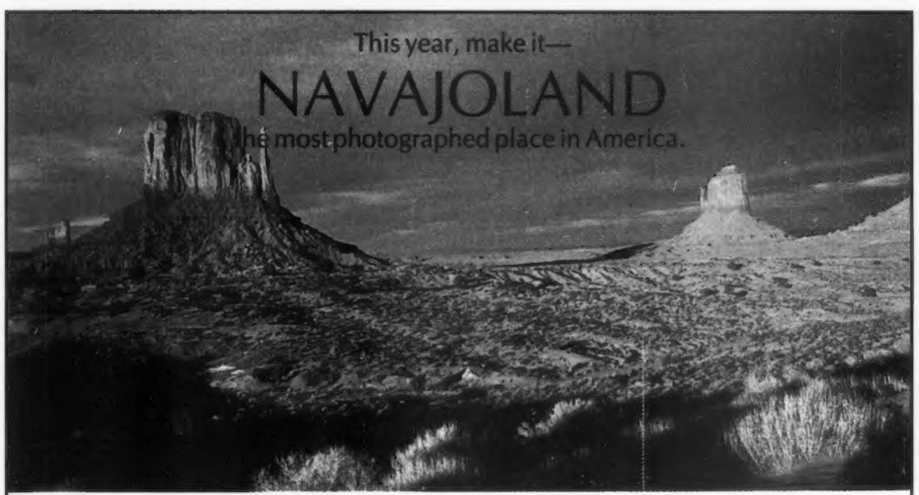

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JA(E)GER
JAMES
JAM(IE)SON
JANES
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JUDY
JULIAN
JULIEN
JUSTICE
KAU(N)E)
KAISER
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LETTERS TO THE EDITOR

Trailing Lewis and Clark

In your June issue, I found the article "Trailing Lewis and Clark on the Missouri" by Dayton Duncan very interesting. My roots in Fort Benton go way back.

My Grandfather Charles Mack was a teamster who hauled freight out of Fort Benton to other parts of Montana and up the Whoop Trail into Canada. My Grandmother and her Mother and Uncle came up the Missouri from Saint Louis to Fort Benton prior to 1883. Also, my Great-Great-Grandmother sewed clothes for the fancy women of Fort Benton — could be, for Madame Moustache. That's how she made a living.

I have a report card of my Grandmother's dated December 1883 from a Fort Benton school. She got all 90s.

Jack A. Mack
Salt Lake City, Utah

The June 1987 issue of AMERICAN WEST was the first issue I have read.

I enjoyed many of the articles, especially "Trailing Lewis and Clark on the Missouri." I would have enjoyed reading the article more if the print had been a little larger. I realize larger print increases the cost, but for those who have difficulty reading smaller print, maybe a solution could be found.

Doris L. Taylor
Montpelier, Idaho

Western Camp Tales

Here's an interesting footnote, I hope, to the Western Camp Tale by Mike Blakely concerning Daniel Boone and Billy Dixon (April 1987). Billy Dixon's youngest daughter is living in my hometown of Clayton, New Mexico. Her name is Dora Coble, and she is over ninety years old. I sent my copy of AMERICAN WEST to my sister to show to Mrs. Coble.

Sybol Oliver McLaughlin
Fort Myers, Florida

Mike Blakely's article "Mule Artillery" (June 1987) made me check my mountain artillery notes. His article may refer to the idea tried at Fort Leavenworth. See *The Troopers* by S. E. Whitman, pages 187–88. Or *Whoop-Up Country* by Paul F. Sharp, pages 163–64. This tryout supposedly took place at Benton, Montana.

In the U.S. Army Artillery Museum, Fort Sill, Oklahoma, there's a small breech-loading cannon swivel mounted on a pack saddle.

H. B. Kister
Indianapolis, Indiana

Plowtown Choteau

It's not important, of course, because the "Westerners" article is about A. B. Guthrie, Jr. (June 1987). However, I just can't resist mentioning that Choteau, Montana, is a lot more "plowtown" than "cowtown," as Jim Robbins has characterized it.

Incidentally, I kind of matriculated under the guiding hand of Choteau High School Principal A. B. Guthrie, Sr., and I believe he is one of the best things ever to happen to Choteau. He ran a "taut ship" and, believe me, we sure needed one.

Sidney G. Depner
Murrells Inlet, South Carolina

Kudos

I have been a subscriber to your wonderful magazine for several years.

David Muench's spectacular photograph of the Golden Gate Bridge on the cover of the April 1987 issue impressed me so much that I would like to have a copy of it suitable for framing.

Please send me in the enclosed, self-addressed, stamped envelope names and addresses so I may obtain a copy. Thank you sincerely.

Richard W. Croucher
Sacramento, California

I am not a letter-to-the-editor writer, but now kudos are in order. I had written along about February to cancel my subscription because I was disgusted with the excessive amount of advertising. . . . Then along came your next issue, and it was so much improved that I could not believe it was the same magazine. Much better pictures with better color, better articles, and not all the advertising is for would-be cowboys living in a fantasy world. Now the June issue is also excellent.

I have now resubscribed, and all I can say is keep up the good work with the new format.

David R. Rauschkolb
Solomon, Arizona

Roads in the Cabeza Prieta

I have just had an opportunity to read Doug Peacock's article "A Lonely Desert Rendezvous" in your July/August 1986 issue. In a footnote at the end of the article Peacock states, "The desert trek may no longer be possible if the managers of the Cabeza Prieta Wildlife Refuge continue to grade roads in this fragile desert country."

As Mr. Peacock is probably aware, the Cabeza Prieta National Wildlife Refuge is currently being managed as "de facto" wilderness by the U.S. Fish and Wildlife Service according to its rules and regulations. What Mr. Peacock may not know is that the primary reason for the establishment of the Cabeza Prieta Wildlife Refuge was the conservation and protection of desert bighorn sheep and Sonoran pronghorn.

Last year's decision to maintain certain refuge roads with a road grader was made in conformance with the "minimum tool" guidelines of the Fish and Wildlife Service's wilderness policy. It is important to have these roads maintained so water trucks can access desert bighorn sheep waterholes. . . .

Stephen M. Williams, Chairman
Legislative Committee
Arizona Desert Bighorn Sheep Society
Phoenix, Arizona

AMERICAN WEST welcomes letters from its readers. Letters may be cut for reasons of space, without altering their meaning. Please address: Letters to the Editor, AMERICAN WEST, 7000 E. Tanque Verde Rd., Suite 30, Tucson, AZ 85715.

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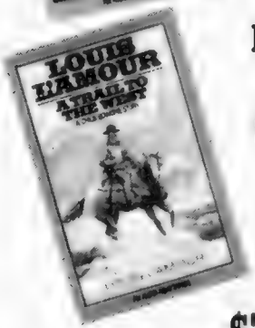

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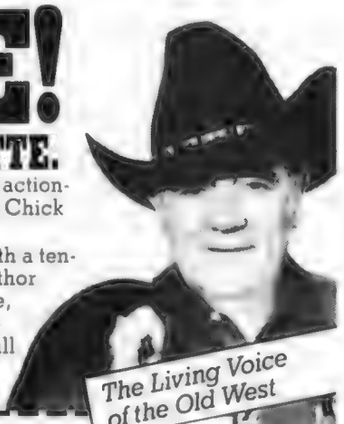

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PHOTOS BY AUTHORS

Plaza Hotel, New Mexico's "Belle of the Southwest"

by Francis L. and Roberta B. Fugate

Motorists who leave the concrete ribbons of Interstate 25 at Las Vegas, New Mexico, will plunge into the scene of a historical pageant that started some 8,000 to 10,000 years ago, when the Folsom Man roamed the countryside in search of bison, mammoths, and mastodons. Archeological digs and history reveal that generations of Basketmaker and Pueblo Indians, Spanish colonists and religious zealots, and marauding Plains Indians left their marks upon this land.

If the twentieth century motorist follows signs to the Plaza Hotel, he will face a village square that was laid out in 1835 as a loading area for caravans traveling the Santa Fe Trail. This was the Mexican port of entry for the long trade route that started in Missouri and ended in Santa Fe. In 1846 at the advent of the War with Mexico, General Stephen Watts Kearny arrived at the plaza with his Army of the West. He mounted a rickety ladder to a rooftop and claimed New Mexico on behalf of the United States: "We come amongst you as friends, not as enemies; as protectors, not as conquerors."

Despite Indian raids and the Civil War, freight wagons and stages plied the trail, and Las Vegas boomed. As railroad tracks drew near in 1879, a representative solicited pledges from local businessmen to build a station. Alas! Donors discovered the rails would pass through open country a mile to the east.

Buildings sprang up along Railroad Avenue by the tracks. "New Town" grew, and the area around the plaza became known as "Old Town." In 1880 Don Benigno Romero raised $25,000 to build an elegant, three-story brick hotel facing the plaza, the "Belle of the Southwest." Along with Las Vegas, the Plaza Hotel endured good times and bad. During the 1890s the town became a haven for tubercular patients; sanitoriums opened, and guests filled the Plaza. In rooms facing the old square, guests had varying views. On occasion they saw the bodies of outlaws who had been killed by vigilantes. Then in 1899 came the raucous reunion of Teddy Roosevelt with his Rough Riders, most of whom had come from New Mexico.

In 1913 Romaine Fielding, one of the most popular film stars of the day, arrived to make movies. Because of an argument with the manager of the Plaza, he leased the entire establishment, and it was renamed in his honor. After making seven pictures, including *The Golden God*, a futuristic saga of a labor revolution predicted for 1950, Fielding left town. The 5,000 extras who had participated in a cavalry charge through the streets of Old Town helped spend the $50,000 the movie company left behind. The Plaza Hotel took back its old name, but one can still see

"Hotel Romaine" emblazoned on the west wall in faded white letters.

In 1915 Tom Mix came to participate in the First Annual Cowboys Reunion, a local rodeo, and stayed to make movies: *Never Again, The Rancher's Daughter,* and *The Country Drugstore*. The latter two were pioneer "Westerns," and Tom Mix went on to become one of the nation's most popular actors.

Over the years, the Plaza suffered physical deterioration. Nevertheless, it was listed in the National Register of Historic Places. In February 1982 Wid and Katherine Slick arrived on the Las Vegas scene to ramrod rehabilitation of the aging structure. Architectural documentation and historical studies assured accuracy. Thirteen months and $2,000,000 later the Plaza Hotel reopened. Its spacious halls and dining room are studded with antiques, and its decorations and appointments reflect Victorian splendor. The rooms are large and airy. Evidences of modernization have been artfully concealed. For example, one locates the television set by opening a large antique armoire.

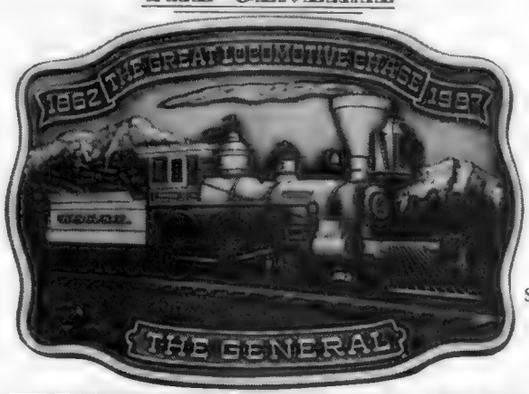
On your first trip to Las Vegas, the Plaza is an excellent headquarters from which to visit old Fort Union, only twenty-seven miles away. The Fort was established in 1851 as a station on the Santa Fe Trail to protect settlers and travelers from Indian attack. By 1891 it had outlived its usefulness, but it has been reconstructed with an excellent historical museum.

Within Las Vegas you find the Rough Riders Museum; the Castañeda Hotel on Railroad Avenue, formerly a Harvey House serving the Atchison, Topeka, and Santa Fe; and The Montezuma, a 300-room luxury hotel built around hot springs — it has been rehabilitated by the Armand Hammer Foundation for use by the United World College. Along the way are many fine, old Victorian structures and historical memorabilia. Leaving town, we usually drive out to a stretch of the old Santa Fe Trail where the ruts are still visible after more than 150 years.

The Plaza Hotel is open year-around. Box lunches or picnic combinations are provided for those who wish to spend a day exploring the area. The hotel has thirty-seven rooms, four of which are suites. Rates: Singles $45, $50; doubles $50, $55; suites $70 and up. (Seniors get a 10% discount.) For information write: Plaza Hotel, 230 on the Old Town Plaza, Las Vegas, New Mexico 87701. Telephone: (505) 425-3591.

Francis and Roberta Fugate, *who live in El Paso, Texas, are inveterate travelers in and reporters on the West.*

THE GENERAL



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PHOTOGRAPHING THE WEST

PHOTO BY AUTHORS

Glorious Glacier National Park

by Erwin and Peggy Bauer

Among the best things that can befall any photographer is to be in Glacier National Park as August is blending into autumn. The crowds of summertime are thinning out, and even the busiest campgrounds and lodges are only part full. Nights are gradually becoming cooler. Days tend to be still and invigorating, if not intoxicating. The weather is never better for color photography. This scenic corner of Montana surpasses its own billing as "the best of the big time splendors."

For readers who have not yet visited Glacier Park, it is a region of waterfalls and snowfields, of wildflowers and evergreen forests spread over a million acres in the Rocky Mountains just south of the United States–Canadian border. High snow-capped peaks and green U-shaped valleys are home to all of the grandest animals in the American West. Glacier is a final stronghold of the grizzly bear, and some sections of the park are closed to exploring to prevent human confrontation with the animal. Going-to-the-Sun Highway, the paved trans-park road, is fifty miles of stunning scenery, skirting mountain-rimmed lakes and crossing the crest of the Rockies at Logan Pass. It is difficult to drive over this road and not pause so often that your entire film supply is soon exhausted.

Still, trail hiking is the best way to photograph the park seriously. Early and late, watch for deer, elk, moose, and even black bear along Camas Creek Road between Apgar and Camas Creek entrances. Hike from near Lake McDonald Lodge toward Sperry Chalet to focus on mountain goats. Bighorn sheep are usually lurking in the vicinity of Many Glacier Hotel. An early morning boat ride (from Many Glacier) on Swiftcurrent Lake followed by a day hike to Grinnell Glacier is always an indelible experience. Later in October as many as 300 bald eagles will congregate near the outlet of McDonald Lake to feast on spawning salmon. It is a unique wildlife spectacle.

For hiking Glacier trails, a roomy beltpack, a daypack, or light backpack is as important as camera and lenses, plus lunch and a sweater or windbreaker. Split up between the two of us, we carry two identical camera bodies, plus a 35–70mm zoom lens, an 80–200mm medium telephoto zoom, a 300 or 400mm long telephoto lens, and a mountain or trail tripod. All of this equipment is interchangeable between us. The 35–70mm zoom is the one we most often use for the magnificent landscapes around every bend in the trail; the longer lenses are ready for the wild creatures we always meet. For late spring through midsummer, we may also include a 55mm macro-lens to compose close-ups of the myriad wildflowers that blanket every

mountain slope.

There are no hard and fast rules for shooting majestic landscapes and mountain scenes like those here, taken along the well-marked, well-graded trail from Many Glacier to Grinnell Glacier. But here are a few landscape guidelines well worth considering anytime, anywhere in the West.

A common mistake is to shoot from a position too close to a scene, perhaps from a valley just underneath and looking up at the mountains, maybe even losing the peaks. Instead, try a telephoto lens from a greater distance and fill the viewfinder with the massiveness of one mountain or several peaks of the range.

No matter whether western mountains are sunlit from front, back, or sides, the most powerful scenic photographs are made when the sun is low. Put your camera away in a cool place from midmorning to midafternoon throughout midsummer. "Frames" (such as trees) and foregound objects (such as the scarlet berries of mountain ash) are fine, but they should be in sharp focus, not fuzzy from blowing in the wind. Fuzziness in the foreground is only distracting. It is far better to have no foreground at all than an indistinct one. When shooting a landscape, especially with a telephoto lens, mount the camera on a tripod or some other firm rest. Use a small lens opening, say f16 or f22, if the exposure allows, to get maximum depth of focus.

Bright flowers or berries in a foreground can certainly brighten a mountain scene, but they should occur in dense clumps of rich color; otherwise they will be barely noticeable. Foreground wildflowers should always be in sharp focus.

If clouds are traveling across the sky and their shadows marching across the landscape below, make the exposure when the pattern of light and dark is most dramatic. This may mean taking several photos of the same scene to be sure to capture that single most outstanding moment.

For more information on the park write to Superintendent, Glacier National Park, West Glacier, MT 59936. For accommodations: Greyhound-Glacier Park Services, East Glacier Park, MT 59434 between May 15 and September 15. Or Greyhound Services, Greyhound Tower, Phoenix, AZ 85077 after September 15.

Erwin and Peggy Bauer *are authors of* Wildlife Adventures with a Camera, *a world guide to wildlife photography, published by Harry N. Abrams, New York. Available from Travel*Adventure*Outdoors, Box 543, Teton Village, WY 83025. $45 plus $2 p/h.*

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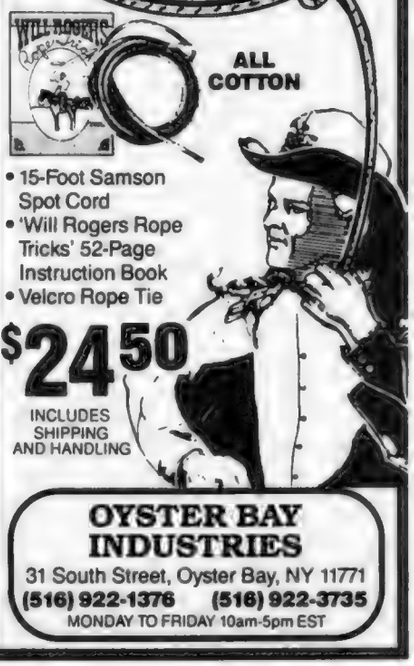

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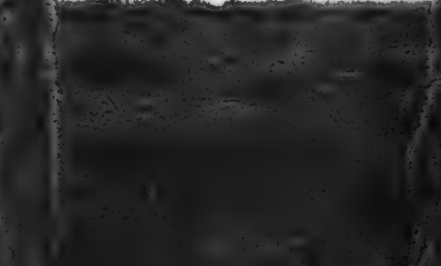

(Top) *1986 Grand Prize Winner by Steven Fuller of Yellowstone National Park, Wyoming*

(Above left) *1987 Grand Prize: PENTAX 645 Camera, 80–160 Zoom Lens, 120-Film Back. Retail value is $2,500.*

(Center) *1987 First Prize: $1,000 worth of KODAK film. Choice of Kodacolor VR-G 100, VR-G 200, VR 400, and/or VR 1,000 speed film.*

(Right) *1987 Second Prize: PENTAX IQZoom automatic camera with built-in 35–70 power zoom lens. Retail value is $385.*

PHOTOGRAPHY CONTEST

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In addition to the Grand Prize and second prize provided by PENTAX and the first prize provided by KODAK in the AMERICAN WEST Fifth Annual Photo Contest, two prizes of $100 each will be awarded. Winning photographs will appear in the May/June 1988 issue of AMERICAN WEST.

CONTEST RULES

ELIGIBILITY

The contest is open to anyone except employees of AMERICAN WEST, PENTAX, and KODAK and their relatives. Previously published photos or ones pending publication will not qualify.

ENTRIES

You may submit up to 3 photos on a Western subject, which will be judged on originality, quality, and technique. Be sure to enclose the official entry form (or a 3" x 5" facsimile) giving your name, address, daytime telephone number, and total number of photographs entered. There is a single entry fee of $3 per participant, whether you enter 1 or 3 photos. Make check or money order payable to "AMERICAN WEST Photo." AMERICAN WEST acquires the right to publish and use for exhibit or promotion all winning photographs.

Photographs may be either black and white or color and are not to exceed 8" x 12" in size. All photographs will be judged together. Please do NOT send slides or other transparencies. Send prints only. Do NOT send photos mounted in glass. If your color photograph is judged a winner, you will need to provide AMERICAN WEST with a color transparency.

Each photograph must be clearly marked on the back with the name, address, and daytime telephone number of the photographer, the place the photo was taken, and the type of camera and film used, along with any special lenses, equipment, or techniques. Model releases must accompany all photos that include identifiable people.

LIABILITY

A stamped, self-addressed envelope of sufficient size and with sufficient postage must accompany your photographs for their return. Include cardboard to protect your photos. AMERICAN WEST is not responsible for materials lost or damaged in the mail.

DEADLINE

Your entry must be postmarked by midnight of December 31, 1987. Late entries will be returned unopened. Send to: AMERICAN WEST Photo Contest, 7000 E. Tanque Verde Rd., Suite 30, Tucson, AZ 85715.

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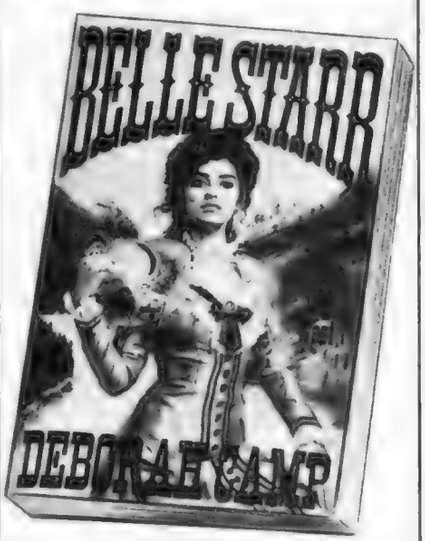

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CALGARY AND T

COURTESY CALGARY TOURIST & CONVENTION BUREAU

(Top) *Chuckwagon Races thrill crowds every night during the Calgary Stampede.* (Above) *The Olympic Centre in Palliser Square provides information about the Winter Olympics to be held in Calgary in February 1988.*

Stampede town looks ahead with Old West grit

by Jennifer M. Sass

COURTESY CALGARY TOURIST & CONVENTION BUREAU

THE SPIRIT OF '88

THE GRASS WAS BROWN, THE ICE SCULPTURES nearly melted, and the only snow in sight had been trucked in from the mountains. But we Calgarians weren't about to let a spell of unseasonably warm weather dampen our enthusiasm for the first annual "Winter Festival." Billed as "The Spirit of '88," it was held this year on Valentine's weekend, to mark the one-year countdown to the 1988 Winter Olympics.

It seems odd to complain about a lack of snow and ice in February and to worry about the absence of freezing temperatures. But when you've invited the city to a winter party and the world to a winter sporting event, you scan the skies for snow.

The people of Calgary do like a party, with or without the help of Mother Nature. So, tens of thousands of us turned out to munch our way through a tentful of ethnic treats, admire the ice sculptures, and take part in activities ranging from the seniors' triathlon to dogsled races. Of course, the mushers had to make some concession to the snowless conditions—they swapped the runners on their dogsleds for wheels. That spirit of innovation—of being able to roll with the punches—has always been an important part of the character of Calgary.

We've found ourselves swept along on a roller coaster ride since the mid-1960s when we became the economic mecca of Canada during boom times in the oil business. Our population swelled at an alarming rate, taxing existing facilities, but providing a windfall for the construction industry. After all, we needed brand new subdivisions, brand new stores, and brand new high rises for all these brand new citizens.

At one point, the downtown skyline was changing so quickly—with old buildings coming down and new office towers going up—that one Eastern scribe quipped that Calgary would be an awfully nice city if only they'd finish unpacking it. Well, now it's unpacked and maturing like a headstrong teenager into an interesting but still unpredictable adult.

The oil boom of the '60s and '70s has gone bust, but that doesn't mean Calgary has run out of energy. Quite the opposite. In true pioneer spirit, we're once again nurturing those roots that made us strong, while keeping an eye firmly fixed on the future.

We Calgarians love/hate our cowtown image.

COURTESY TRAVEL ALBERTA

(Right) ***Eighty miles west of Calgary, the magnificent century-old Banff Springs Hotel sits among some of Alberta's most spectacular Rocky Mountain scenery. The center for skiing on Mount Norquay, Banff townsite is also a mecca for summer vacationers in Banff National Park.*** **(Opposite)** ***Calgary's Prehistoric Park offers a fascinating look at life in Alberta millions of years ago. The park includes a realistic recreation of the flora and fauna of prehistoric times, including a collection of surprisingly authentic dinosaurs.***

CALGARY'S BEGINNINGS WERE UNPRETENTIOUS enough. The original settlement was created in 1875 for no more glamorous reason than to put down the whiskey traders and keep law and order in the Canadian West. A small detachment of the Northwest Mounted Police found its way to the spot where the Bow and the Elbow rivers joined and put up a small fort. This must have seemed as good a place as any—the Indian tribes that the Mounties were sent to protect were camped nearby in the sheltered valleys, and the swift-flowing mountain rivers often remained partially open throughout the year, hosting great herds of wintering buffalo.

But this new Fort Calgary was no overnight success. The buffalo herds were being hunted to near extinction. Indian treaties of the day restricted the traditional way of life of the tribes and made them more dependent on white culture. And the first homesteaders lured to the area were having a hard time producing crops.

However, typically, there was a silver lining. The Canadian Pacific Railway came through in 1883 and propelled the struggling little settlement toward its first big boom. In a scene that would repeat itself several times in the next hundred years, businesses appeared almost overnight. After all, these free-spending railway crews needed goods and services. So, the entrepreneurial spirit of Calgary supplied them with butchers and barbers, bars and bordellos. Within ten years Calgary was incorporated and boasted all the amenities of urban life—mail service, several churches, a newspaper, and, of course, property taxes.

The disappearance of the prairie buffalo meant that open-range cattle ranching was now a possibility. And right away it became clear that cattle would be the ticket to the future. The livestock industry spawned Calgary's first true millionaire, an almost legendary folk hero named Patrick Burns. Here was the kind of self-made man Calgarians have always liked the best. He came from humble origins and made his money the old-fashioned way, with a strong back, a visionary's eye, and a gambler's stomach. Inspired by those great herds of cattle, Burns proceeded to give Western Canadians what he knew they really wanted—a steak in every fry pan and a roast in every pot. "Burns Foods" is still around and is still an important part of Calgary's economy.

When you walk through the downtown streets today, evidence of the energy business is everywhere—the Petro Canada Building, Gulf Canada Square, Esso Plaza, Dome Tower. But there are still signs of the old days left by men with big dreams who built this town. Men like A. E. Cross, a rancher and the founder of the Calgary Brewing and Malting Company. Cross was astute enough to know that the best way to sell your brew was to buy up the watering holes. So, he

COURTESY CALGARY TOURIST & CONVENTION BUREAU

bought up hotels throughout the West and became very rich. His beer company has changed hands a couple of times, but it still makes suds in the very same spot.

AND, OF COURSE, THERE WAS SIR JAMES LOUGHEED—a lawyer, a senator, and the founder of a family that dominated Alberta politics for nearly a century. The senator's grandson, Peter Lougheed, left politics in 1985 after spending fourteen years as the most wildly popular and successful premier the province has ever had.

These men and others like them set the character for the Calgary of today. We got our start as a "cowtown," but with a decided preference for the gentry side of ranching. And we've had a love/hate relationship with the cowtown image all our lives. Cattle made the town. There's no doubt about that. But it was the *business* end of cattle—the clean, genteel art of buying, selling, marketing, and banking. We do have a cowboy image. But the cowboys didn't really live "here" in town. They lived "out there" on the range. And we gave them places to go on Saturday night to spend their money.

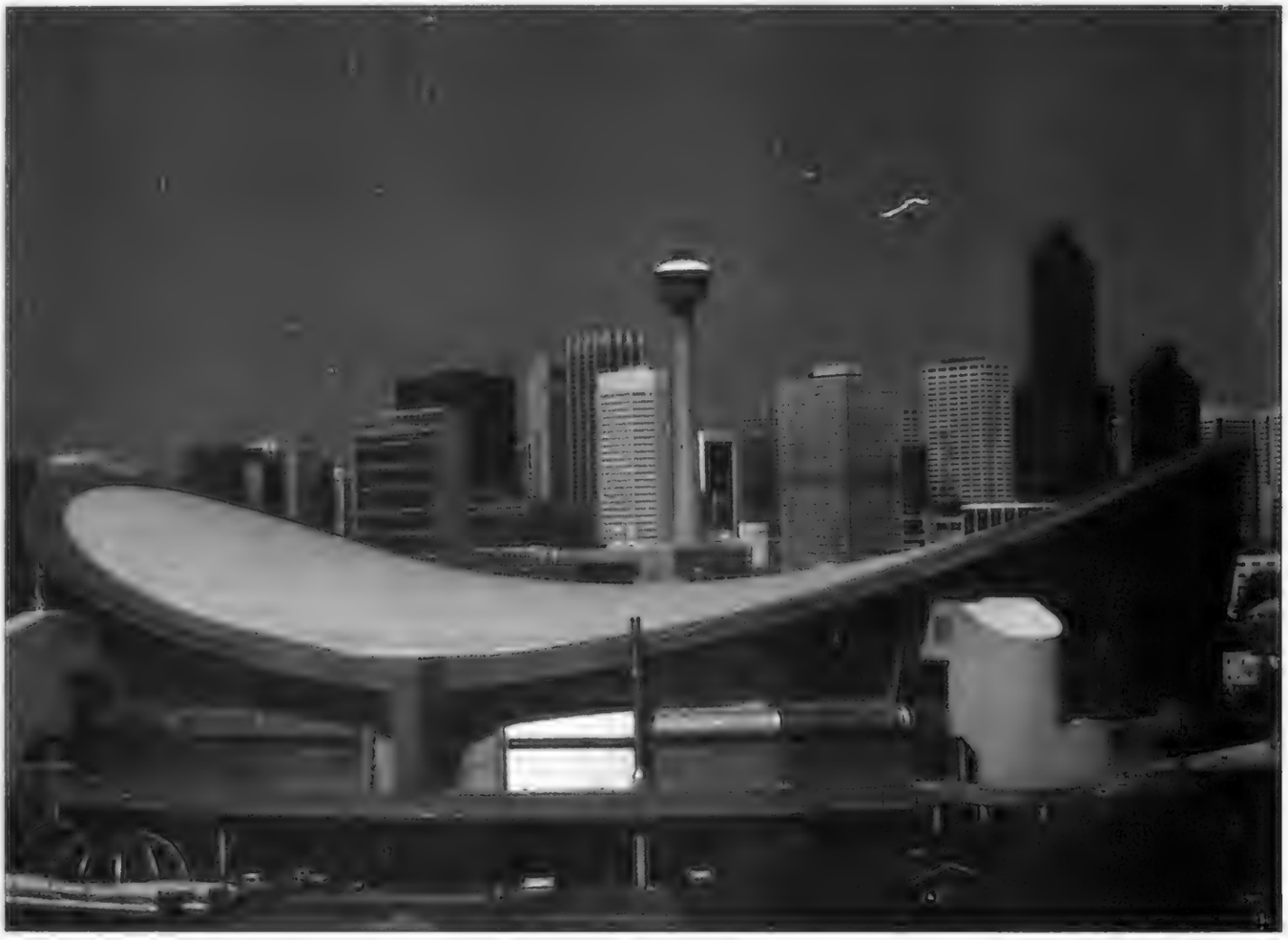
Starting in 1912, there was a whole new place to go to spend your money. That was the year of the first Calgary Stampede. Early that summer, Guy Weadick came to town. Now Weadick, as it happens, was a shirttail relative of mine, a cousin to my grandmother. He was an American-born promoter long on ideas but short on capital.

Weadick's idea? To stage a wild west show—a cowboy contest—with prize purses large enough to tempt the very best bronc busters, trick riders, and fancy ropers from both sides of the border. He knew he'd get top competitors only with big money up for grabs. And the capital? One hundred thousand dollars, twenty thousand of which would form the prize money, payable in gold to the best cowboys.

Now, this was a pretty ambitious plan. Calgary already had an agricultural exhibition, and some people felt that was quite enough. But Weadick's enthusiasm caught the attention of George Lane, one of the cattle kings of Western Canada. Lane was intrigued, and he in turn called on his friends A. E. Cross and Pat Burns, who gathered up a fourth partner, A. J. McLean. These "Big Four" as they've come to be known, chipped in twenty-five thousand each, and "The Greatest Outdoor Show on Earth" was born.

By all accounts, that first Stampede was a pretty good time. His Royal Highness the Duke of Connaught (Canada's Governor General) brought his daughter, the lovely and popular Princess Patricia. The royal party came for the day and stayed for three.

And there was rodeo royalty, too—like Florence LaDue, a fancy roper and Guy Weadick's wife. (Members of my family who knew Miss LaDue claim she was a bit of an odd



COURTESY CALGARY TOURIST & CONVENTION BUREAU

duck. They say she mistrusted banks so much she converted her cash into uncut diamonds and carried them in a velvet bag around her neck.) There was Art Accord from Oregon, who went on to become one of the first cowboy movie stars. Pancho Villa sent his very best steer roper all the way from Mexico. And there was Tom Three Persons, a young Alberta Blood Indian who rode a bad black horse named Cyclone all the way from the first Stampede saddle bronc championship right into the legend book.

NOT UNTIL 1923, WHEN THE STAMPEDE RODEO married the Calgary Exhibition, did the whole thing begin to take shape as the kind of international event we know today. The 1980s version is a multi-media show, combining the stomach-churning attractions of the midway with the sensory delights of the Indian dancing. The rodeo is important, of course, but the atmosphere has changed a bit. There's an art exhibition as well as a livestock show, and a Broadway-style grandstand revue. However, you can still find a free chuckwagon breakfast every morning of Stampede, and you can still watch the chuckwagons in action on the track every night.

This Rangeland Derby, as it's called, got its start at that 1923 Stampede. And although it's undergone a lot of changes in the last sixty years, the thrill is still there. The "chucks" are a must for any Stampede visitor. And even jaded Calgarians, who like to joke that Stampede Week is when they leave town, can usually be found staking out a favorite spot along the rails to catch a heat.

The races are not without controversy. Just last summer, a particularly spectacular crash led to a lot of soul-searching on the part of the Stampede Board. Two of the rigs, pulled by four horses each and traveling flat out along the back stretch, collided when a lead horse from the wagon behind stepped into the protruding basket of the wagon in front. By some miracle no human life was lost, although photographs of the accident show drivers and outriders being tossed through the air like rag dolls.

Five horses died in the accident, and the whole event was feature news in papers around the world, prompting a call for an end to these races. The Stampede Board studied the matter this past winter, and in the interest of safety, announced changes to the wagon design. The chucks are exciting, and it's pretty hard to have excitement without risk.

Risk is something we've always been ready to take. That's how we got into the oil business, back on Valentine's Day in 1947. It was called the "Leduc Strike." The day that well blew in was the day Calgary changed forever. The Leduc Strike transformed us from a cowtown to an oil town. And just as we had run the cattle business without soiling our

(Opposite) ***Home of the Calgary Flames of the National Hockey League, the Olympic Saddledome is shown in the foreground of Calgary's skyline. During the 1988 Winter Olympics, the Saddledome will be the site of the hockey and figure skating events.***

COURTESY CALGARY TOURIST & CONVENTION BUREAU

The Conversation ***is one of the amusing sculptures along Stephen Avenue Mall, a pedestrians-only route through downtown.***

SOME FAVORITE PLACES

CHINATOWN: A great place to poke around, especially on a weekend morning. The markets are full of exotic herbs and vegetables, barbecued ducks are strung up in the shop windows, and the stores offer "great stuff" — rice cookers, incense, kites, embroidered blouses. Try Dim Sum at one of the neighborhood restaurants. There are no menus for this Chinese brunch — you choose from the carts as they're wheeled around, and you pay by the plate. It's cheap, it's fun, and it's great food.

THE GLENBOW MUSEUM, 9th Avenue and 1st Street S.E., tel. 264-8300: Ordinary on the outside, wonderful on the inside! See the four-story acrylic sculpture *Aurora Borealis*, the fine collection of pioneer artifacts, the Plains Indians Display, and the special exhibition galleries. When you're done, walk through the attached hotel complex to the Wheatsheaf Cafe. Take time for tea, and be sure to ask for the dessert cart. Go for it. You can work it off later with a walk.

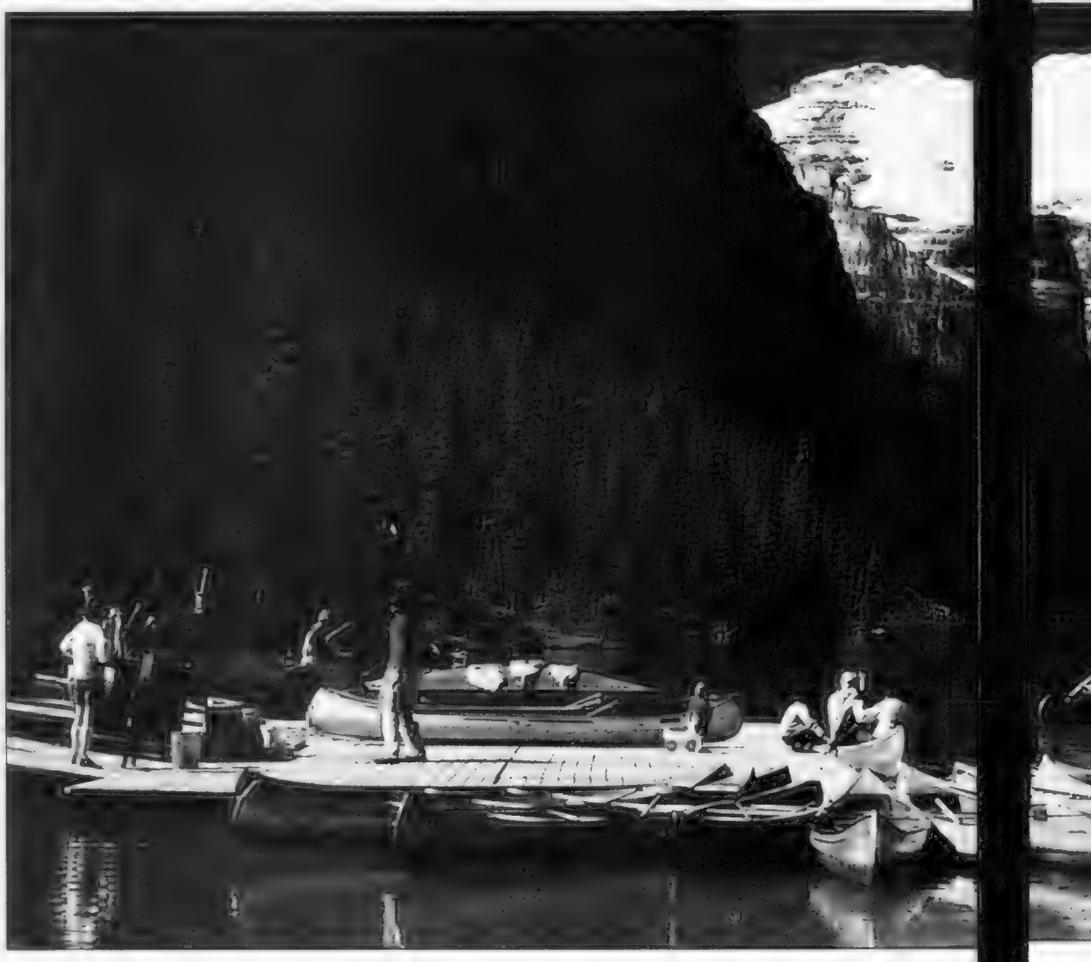
GO FOR A WALK: Try the Stephen Avenue Mall, from McLeod Trail to Centre Street. Lots of Heritage sandstone architecture, along with the new Olympic Plaza where the medals will be handed out next winter. Fun sculptures along the way include *The Chess Player* and *The Conversation*. End your walk at the Calgary Tower. Take in the Olympic Centre, then go to the top of the Tower for lunch, a drink, or just to enjoy the 360° view of city, prairie, foothills, and mountains.

WESTERN HERITAGE: There are a couple of good places to get that Western Feeling. Old Fort Calgary, site of the original settlement, is now the home of a good interpretive center. For more of a hands-on approach to history, there's Heritage Park, (Heritage Drive and 14 Street S.W., tel. 255-1182) with its antique railway, working bakery, and restored pioneer homes. The Park sits on the edge of the Glenmore Reservoir; so, you can watch the sailboats or take a ride on the paddlewheeler.

MEET A DINOSAUR: If you've got a day, drive to the Tyrrell Museum of Paleontology in Drumheller (90 minutes east of Calgary) for their first-rate specimens from Dinosaur Park (A World Heritage Site).

If you've got a few hours, head to the Calgary Zoo for their wonderful Prehistoric Park (St. Georges Island, Memorial Drive and Zoo Road, S.E., tel. 262-8144 for recorded message). You'll find dinosaurs, hoodoos, and the vegetation of a million years ago. Of course, there's a regular zoo, too, and rumor has it there'll be a panda display in time for the Olympics.

The '88 Olympics open a brand new future for Calgary.



Lake Louise is one of the gems of the Canadian Rockies. Situated 115 miles west of Calgary, the area offers Canada's largest ski area, with slopes on two mountains. With the great Victoria glacier dominating the view from the lake, summer activities include canoeing, horseback riding, and hiking.

hands too much, now we began to run the energy business in much the same way.

Oil and gas production brought money to Calgary. It brought geologists and geophysicists, draftsmen and drillers. It brought hundreds of thousands of people—most of them educated, most of them professionals. They came here to be part of the action and to cement Calgary's reputation as the Energy Capital of Canada. These new Calgarians sent the population on an upward spiral, adding half a million people in just thirty years.

We suffered through the growing pains of this latest boom. We grumbled about the over-taxed civic facilities and these opportunists from "down east." But deep down, I think we were secretly pleased by our popularity. We always knew Calgary was a pretty good place to live, and this just proved it. After all, could half a million newcomers be wrong?

THE MAD RUSH OF THE '60S AND '70S BROUGHT about an almost total physical change to the city. And except for the trademark Calgary Tower, the downtown core would look like another planet to someone who hasn't been here in a decade. But the building boom is over, for the moment anyway. The 1980s have brought a recession in the energy business. And we've been forced by a complicated combination of government policy and world oil prices to slow down and contemplate the future.

As we look to the future, we have a chance to savor the present. And the present is very much the 1988 Winter Olympics. Preparing for the Games has, I suspect, been rather like getting ready for any big party. You squabble about everything from the guest list to the accommodations. You convince yourself you'll never be ready. But in the end, everyone has a marvelous time, and you just know it has all been worthwhile.

Well, we've had our share of squabbles, that's for sure. And we've worked hard to get ready for the world. We've built the Olympic Saddledome, home of the "Flames" hockey team and a striking addition to the Calgary skyline. We have a new speedskating oval, twin ski-jump towers, and one of the best bobsleigh and luge tracks in the world. The Canmore Nordic Centre, venue for the cross country and biathlon events, is in the mountains about sixty-six miles west of Calgary. And there's "Nakiska" at Mount Allan, site of the downhill ski competitions, an hour's drive to the west of town.

We're sure everyone will have a marvelous time. And we know it will all be worthwhile in the end because we see the Olympics as much more than just a two-week sporting event. We see the Games as the grand opening to a brand new era.

We've lived with boom and bust for the last century. We've gambled our future on the vagaries of cattle prices and the temperamental energy business. But we're maturing now, and we're laying the groundwork for a secure investment in

COURTESY TRAVEL ALBERTA

our own tomorrow. We see 1988 as the best time of all to introduce the world to those luxuries we've always had — blue skies and clean air, majestic mountains and rolling foothills. And some of the finest trout fishing in North America.

And we're comfortable enough now with our grown-up sophistication to be able to relish our Western heritage. We dress up for the theatre and the philharmonic, heard now in the elegant new Jack Singer Concert Hall. But we still dust off our boots and squeeze back into jeans for those ten days of madness each July known as Stampede Time. Our Spruce Meadows Equestrian Facility attracts world champions of this civilized sport. But we still welcome special civic guests with the gift of a white cowboy Stetson.

A couple of years ago, city council voted to give a helping hand to a fledgling ballet company. They turned over the keys of an interesting but run-down heritage building to serve as a studio and dance school. The ballet company was new and unproven, really little more than a fancy. But the aldermen decided that sometimes it's important to put your faith in a dream.

That's the way a lot of us feel. We've lived through the ups and downs, the boom and bust, always keeping an eye on tomorrow. Our city motto is "Onward." And that pretty much says it all.

Jennifer A. Sass *works in television in Calgary, Alberta.*

WHEN YOU GO

Calgary is a city of over 600,000 population situated in the foothills of the Canadian Rockies at an altitude of over 3,400 feet in the southern part of the province of Alberta. It is on the Trans-Canada Highway at the intersection of Highway #2. From the Montana border, take Highway #2 north for about 150 miles. Calgary may also be reached by air (it has an international airport) and by a transcontinental rail line.

Calgary's annual Stampede will be held in 1987 from July 3 through 12. For tickets and information, write: Calgary Exhibition and Stampede Tickets, P.O. Box 2890, Calgary, Alberta T2P 2M7, Canada. Tel.: (403) 261-0101 or 1-800-661-1260. You can book accommodations in Calgary through a free service: Calgary Tourist and Convention Bureau, Accommodation Service, 237 - 8th Avenue S.E., Calgary, Alberta T2G OK8, Canada. Tel.: (403) 263-8510 (no collect calls, please).

Calgary will host the XV Olympic Winter Games from February 13 to 28, 1988. The events will take place in various facilities in and near Calgary, with the dramatic downhill ski races at Nakiska, a new ski facility at Mount Allan, about 56 miles southwest of Calgary. After the Games, this Olympic-caliber ski resort will be open for general recreational skiing. For information concerning tickets and schedules for the 1988 Olympic Winter Games, write: OCO '88, P.O. Box 1988, Station C, Calgary, Alberta T2T 5R4, Canada.

The province of Alberta has many other attractions, notably Banff National Park, Lake Louise, and Jasper National Park, all offering both summer and winter activities. The government of Alberta provides free literature for visitors, such as Alberta Road Map, Alberta Accommodation Guide, Events Calendar, Alberta Adventure Guide, and Alberta Winter Activities Directory. Send your requests to Travel Alberta, Dept. E, Box 2500, Edmonton, Alberta T5J 2Z4, Canada. See, also, our listing of special Alberta events in this issue.

ENJOY FRIENDLY, FUN-FILLED ALBERTA

COURTESY CALGARY TOURIST & CONVENTION BUREAU

AMERICAN WEST has listed just a sampling of the many enjoyable events taking place this summer and fall in Alberta. For more information, contact Travel Alberta, Box 2500, Edmonton, Alberta T5J 2Z4, (800) 661-8888 or in Alberta (800) 222-6501.

Banff Festival of the Arts

Jun. 6–Aug. 27: Banff. To celebrate the arts this summer, The Banff Centre School of Fine Arts hosts performances of music, drama, and dance. Scheduled works include the play *Ghosts* by Ibsen, jazz concerts, the operas *Ormindo* by Cavelli and *Postcard from Morocco* by Argento, and the ballets *Gaieté Parisienne* by Massine and *Seranade* by Balanchine. For tickets, call (403) 762-6300.

The Works: A Visual Arts Celebration

Jun. 26–Jul. 5: Edmonton. Delight your senses with a stroll through The Works, where outdoor sculpture, videos, photographs, paintings, prints, and wearable art are on display. Wandering mimes and performance art pieces add to the fun. (403) 426-2122

Jazz City Festival

Jun. 26–Jul. 5: Edmonton. Held in conjunction with The Works, this festival features top international jazz musicians at night, along with free concerts during the day in the artists market. (403) 432-7166

Calgary Exhibition and Stampede

Jul. 3–12: Calgary. Exciting rodeo action is just the beginning of the fun to be had at the Stampede. Chuck-wagon races, an outdoor stage spectacular with singing and dancing, international stock show, and midway and casino provide hours of fascinating entertainment. (800) 661-1260 or (403) 261-0101.

SummerFest

Jul. 11–19: Edmonton. Street performers highlight this outdoor extravaganza. Musicians, magicians, acrobats, jugglers, clowns, mimes, contortionists, sword-swallowers, and dancers transform downtown Churchill Square into a festive stage. (403) 425-5162

Klondike Days

Jul. 16–25: Edmonton remembers its gold-rush past with Gay Nineties costumes, entertainment, and all kinds of crazy contests like the Hairiest Chest in the West contest. Hot-air balloon races, breakfast parties, a canoe regatta, the Waterdale Klondike Melodrama, Sourdough Raft Races, Dapper Dan Pageant, and "King of the Klondike" competition are just some of the exciting events held. Prizes are awarded for the best Klondike costumes — so come prepared. (403) 426-4055

Heritage Festival

Aug. 2–3: Edmonton. Get a taste of the multitude of cultures that contribute to the city's heritage. Edible treats from around the world please your palate, while performances of all kinds of ethnic dances and songs entertain. The public is invited to get hands-on experience in making food and crafts or performing energetic dances. This year's goal is to try and beat the world record for the longest congo line. (403) 433-3378

Folk Music Festival

Aug. 7–9: Edmonton. Clap along as musicians strum up a storm playing country tunes and rhythm and blues on electric and acoustic instruments. (403) 429-1899

Fringe Theatre Event

Aug. 15–23: Edmonton. "Gone with the Fringe" is this year's theme for the performances in unorthodox settings. You'll find the Fringe Theatre in parks, bus barns, and on the street around town. (403) 432-1553

Short Track Speed Skating

Oct. 17–18: Calgary. Watch topflight athletes zip around the ice at this preview event for the 1988 Winter Olympics. (403) 261-3583

Skate Canada

Oct. 29–Nov. 1: Calgary. In this preview '88 event, sixty figure skaters from around the world compete in singles and pairs skating. (403) 261-3583

Speed Skating World Cup

Dec. 4–6: Calgary. Forty to fifty speed skaters from fifteen countries compete for the world cup. (403) 261-3583

America's First Silver Dollar

In Accordance with Its Established Policy, The Washington Mint Hereby Announces a Limited Release of 4,375 Silver Dollars from the period 1772-1821.

A recently rediscovered private cache of 4,375 historic Silver Dollars from our nation's colonial period has now been authenticated and certified.

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Coin Description:

The obverse of each coin bears the profile of Charles III, King of Spain, and the year in which it was minted. The reverse bears the crown and shield of the Spanish Empire, the 8 Reales denomination, and the Mexico City mintmark.

Each coin was minted between 1772-1821, and each measures 39.5mm in diameter (slightly larger than the U.S. Silver Dollar that it inspired).

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FANNIE SPERRY WOWED 'EM AT FIRST CALGARY STAMPEDE

Lady Bucking Horse Champion of the World, 1912

by Dee Marvine

BREAKING WILD HORSES WAS SECOND NATURE TO Fannie Sperry. Born in 1887 on a Montana homestead north of Helena where broncos ran feral in the mountains, she developed remarkable riding skill. By the time she was seventeen, tall and pretty with dark hair and blue eyes, her "unladylike" horsemanship had overshadowed her popularity with the young cowboys who stood in line to dance with her at local functions. Riding thoroughbreds as one of the four "Montana Girls," a relay-racing team sponsored by the Butte copper kings, she set a world record in women's relay racing at the 1907 Minnesota State Fair.

But Fannie's outstanding ability was riding bucking horses. She didn't hobble her stirrups (tie them beneath the horse's belly for greater stability in the saddle) as did most women competing. She rode "slick saddle" with stirrups flapping free just like the men, a feat of strength and courage that won for her the women's bucking-horse championship of Montana.

Still she was surprised when the letter came early in 1912. "Dear Miss Sperry. I'm impressed with your bronc riding. If you can come to the Stampede I'm putting on in Calgary in September, I'm sure you can win some big money. You'll be riding for the world's championship." The letter was signed by Guy Weadick. She had heard about this promoter's efforts to get backers for a big stampede, one that promised to be the greatest event of its kind ever produced—not just an exhibition but a real competition between the finest riders. Now she was invited to be part of it. And for the world's title.

On September 1, 1912, a steady rain fell as Fannie and her mother, Rachel, who insisted on chaperoning her twenty-five-year-old daughter, arrived in Calgary. Despite the drizzle, Victoria Park bustled with cowboys on saddle horses, wagons delivering supplies, and livestock being herded into the corrals. Fanny and Rachel inspected the exhibition grounds, where exact replicas of the original Hudson's Bay trading post and of Old Fort Whoop-up had been erected along with the tipis of several Indian camps. A row of shotgun chutes lined one edge of the center arena; directly in front stood a booth-like structure that would provide private seating for the final day's guests of honor, the Duke of Connaught—who was Governor General of Canada and uncle of the king of England—his Duchess, and their daughter, Patricia.

Suddenly a commotion arose from the horse barn. A cowboy ran from the building shouting for a doctor. An outlaw bronc named Red Wing had thrown and stomped cowboy Joe LaMar. "Too late for a doctor," someone said. "LaMar's dead."

Word of the accident spread fast, and an hour later, a saddened troupe of riders assembled in the rain for the grand entry rehearsal. Guy Weadick, wearing a high-crowned white hat and astride a sleek black stallion, surveyed the riders' discouraged faces, then announced that all proceeds from the day's performance would be presented to the wife and children of the unfortunate Joe LaMar. A cheer went up. Determined to do their best for their fallen comrade, the riders fell in line for a warm-up surge around the arena.

Fannie Sperry shows the style that won her the title of Lady Bucking Horse Champion of the World, riding slick saddle, not deigning to tie down her stirrups for more stability, as most women riders did.

THE FESTIVITIES BEGAN WITH A SPECTACULAR PARADE through the streets of Calgary. Indians from six tribes—Blackfeet, Blood, Sarcee, Cree, Stonie, and Piegan headed the lineup. Then came missionaries, the Hudson's Bay Company, whiskey traders, and cowmen with their roundup crews, chuckwagons, and cavvy—stagecoaches and prairie schooners with seasoned drivers carrying old-time hunters, trappers, guides, scouts, and frontiersmen. Veterans of the Northwest Mounted Police wearing their red coats followed the mounted cowboy band, and after the groups of featured riders, a band of vaqueros from Old Mexico completed the six-mile-long procession as it trailed back to Victoria Park for the opening event.

The bronc gave a wildcat performance, showing off Fannie's fine horsemanship.

Fannie watched with Goldie St. Clair, a blond Canadian cowgirl, as Weadick's wife Flores (Florence) LaDue, Bertha Blancett, and Oklahoma's Lucille Mulhall galloped into the arena, twirling lariats in wide loops above their heads, and then showed the fancy roping that had made them champions. Next, Florence kept sixty-five feet of rope whirling around herself and her blaze-faced horse.

During the exhibition of trick riding by Tex McLeod, his mount twice crashed into the fence, but Tex was not thrown. Adding comedy to the show, Ed Carr rode a bucking buffalo, and Major Bob Yokum drove a pair of wild buffalos in a chariot race.

Special exhibition rides began the men's event. Charles Tipkins rode with only one stirrup, and Bernie St. Clair stayed on a vicious bucker without any stirrups. In the competition, a number of cowboys tried the broncs in turn. But the horses were not lively enough to challenge the riders and failed to provide a good show.

When the bucking-horse riders drew for their broncs, Goldie St. Clair came up with the killer horse Red Wing. Over the protests of her husband Bernie, she insisted she would ride the savage bronc to a sure win. The women's bucking event began with veteran buster Annie Shaeffer up first on Maple Leaf, a nervous mouse-colored mare who skittered across the field but failed to buck seriously. Fannie was next on Turkey Trot, who snorted in fury as she mounted, then bolted away from the chute in a brief crow-hopping stampede toward the far side of the arena, a disappointed Fannie aboard. The crowd applauded Bertha's slick ride on a savage gray called Rooster, but talk buzzed among the riders that Weadick, furious at the poor showing by most of the broncs, had decided to bring in fresh horses for the next day.

Blanche McGaughey, a versatile rider from Oklahoma, then rode the mustang Toad. But it was Hazel Walker, a young woman from Los Angeles, striding toward the chutes in form-fitting harem-type trousers that produced the most excitement. Shocked onlookers stared, and cowboys snickered. Fannie had raised a few eyebrows in Minnesota during her record-setting relay race by wearing long black bloomers, but they had not been as scandalously revealing as Hazel's harem pants. At Calgary, like the other women riders, Fannie wore a heavy, ankle-length, divided riding skirt.

Hazel's sulky, brown bronc, Hellcat, at first refused to buck, then broke into a run, stumbled, and fell to his knees. Hazel caught her foot beneath his leg, and she was pulled to the ground, still holding one rein. Agile in her daring costume, she got up, remounted, and rode the misnamed Hellcat through a few more uninspired jumps.

Then the day's final event was announced. Mrs. Goldie St. Clair would attempt to ride the killer horse Red Wing. The crowd gasped in alarm at the prospect of a woman on the outlaw bronc, but Goldie climbed to the top of the chute and gamely lowered herself into the saddle. Red Wing heaved and twisted in fury, plunging again and again, his hind feet nearly under his chin. Goldie's body snapped with each roll, her feet gripping the hobbled stirrups. The determined rider sat through the ferocious ride, her free arm thrashing the air, until the whistle sounded. Kicking loose from the pitching bronc, she grasped the hazer's saddle horn and was carried to safety amid wild applause and cheering. Clearly she was the crowd's favorite. Fannie knew her chances of beating Goldie's ride depended on her draw of the fresh broncs Weadick was bringing in.

NEXT DAY ON THE WET TRACK, THE OPENING RELAY race ended in a close finish with Fannie, who had not had a chance to work her mounts before the race, coming in third. Hoopenough, Cowtop, and Sittingdown won the Indian-pony races. Clay McGonagill and Doc Pardee tied in the steer roping. Tex McCarty was first up to test one of the new broncs, Tornado. The horse plowed his nose in the ground with the first kick, nearly turning a somersault. Flying mud prompted standing spectators to edge back as the horse spun for almost fifty jumps, McCarty fighting him all the way.

With rivulets of rain dripping from her hat, Fannie cheered with the others, both for Tex and for the promising new crop of bucking horses. By the time the women's event was announced, she was soaked to the skin. But her bronc, Nett, turned in a wildcat performance that showed off her horsemanship in fine style. She rode until the horse had had enough and quit cold.

Blanche's little buckskin took only a small space to show what he could do. Bucking on a dime, his stiff-legged jumps failed to unseat his rider. Annie's bronc, Baby Reed, crashed the gate and broke away into a stampede down the track. Still poised on the top rail, Annie waited while two hazers drove him back into the chute. Then she mounted for a brief and unimpressive ride.

Goldie drew a "ladies" horse that pitched only a few weak

COURTESY GLENBOW ARCHIVES, CALGARY

COURTESY FAMILY OF FANNIE SPERRY STEELE

COURTESY GLENBOW ARCHIVES, CALGARY

(Clockwise, beginning at left) ***Fannie and her husband W. S. (Bill) Steele team up to produce their own wild-west show in 1913. Fannie rode broncos and performed a sharpshooting act. Bill served as stock boss and advance man. At Calgary in 1912, Hazel Walker (she of the form-fitting harem-type trousers) was thrown by her bronc Buttons. Here she is being helped by several cowboys after her spill. The doughty Hazel remounted Buttons and finished her ride. Lovely Florence LaDue (wife of the promoter Guy Weadick) plays to the grandstand and the judges, demonstrating her flair for fancy roping.***

jumps. Bertha sat a ducker and dodger named Bar Circle, who plowed across the field in an unsuccessful effort to shed saddle and rider. Though stiff from her accident, Hazel climbed aboard Rooster, the rank gray retained from the first day. He fought the saddle, then shot from the chute with a series of hard jumps, heading straight for the fence. Hazel swung from the saddle, managing to avoid falling beneath him, but the horse let go with a hind foot, badly bruising her arm.

Despite the rain and mud, the bulldogging continued wild and rough with steers from the Blood Reserve weighing up to 1200 pounds. Sturdy Bertha competed with the men, then again beat Fannie in the women's relay.

To make up for time lost to sluggish broncs and bad weather, Weadick extended the Stampede two extra days, and crowds increased as the rains subsided. Local newspapers advised that all of Calgary's 60,000 citizens plus visitors from all over western Canada and the United States were attending.

On the final day, the September sky shone a crystal blue as an open coach pulled by two white horses, a top-hatted driver seated high in front, carried the royal guests into the arena. Wearing a medal-bedecked uniform, the Duke of Connaught held his plumed navy-officer's hat high as he climbed the steps to the royal box, followed by the pleasant-looking Duchess and their attractive daughter, both wearing wide flower-trimmed hats and elegant bustled dresses. When they were seated, the Ride to the Colors began. The cowboys and cowgirls galloped two abreast around the arena, waving their hats as they rode before the royal party. One cowpuncher rose in his saddle, doffed his hat, and yelled, "Hey there, Duke." The Duke laughed heartily and won a chorus of cheers when he gave his hat a flourish in returning the salute.

For the final round, Fannie rode the killer-horse Red Wing to win the world title.

Johnnie Mullens opened the show riding Roman Candle, a rough bucker. Then Black Reed, Pardee's bronc, bucked all over the arena. Red Parker, up next on Blue Roan, eased his concentration for a split second to wave at the Duke, and the roan took advantage of it. Only by choking the saddle horn did Parker miss being piled. The royal guests rose from their seats to show their delight in the performance.

An exhibition of stagecoach driving by a veteran of the early days also brought hearty applause. Bertha demonstrated rough riding as practiced on the plains, including her "drunken cowboy" trick ride. Florence performed the difficult feat of tying a double hitch in her slackened rope with only two movements of her wrist, then showed agility and endurance keeping the loop whirling while lying flat on the ground. She tied a cowboy, hand and foot, with three motions of her swinging loop to win the judges' decision. Lucille ran a close second, roping a rider by flipping the rope with her foot.

THEN CAME THE FINAL DRAW FOR THE BUCKING horses. Fannie pulled the slip of paper that would decide her chances for the championship. She drew Red Wing! Luck was with her after all. Riding slick, she had a good chance to beat Goldie—and Bertha, too. Excitement mounted as Annie, first up, burst from the chutes on a white-footed bay named Tip. But Bertha's slick ride on a big red horse called Two Bars brought a roar of approval from royalty and commoners alike. Then Goldie eased onto the wiry bronc Dish Rag, who scattered the handlers as he reared from the chute. Goldie's upper body whipped, her hat went flying, and blonde hair flashed. Only the hobbled stirrups held her on. But she took the pounding. At the far end of the field when the hazer pulled her free, Dish Rag stampeded, and the crowd went wild.

At that point, a voice from the judges' stand announced that the best had been saved for last. To top off the competition featuring the world's best women bucking-horse riders, another contestant would attempt to ride the killer bronc—Red Wing. A hushed murmur, then came a surge of shouts and applause from the stands as the rider's name was called, Fannie Sperry of Mitchell, Montana.

The glistening sorrel stood taut, and a shudder rippled across his flanks as Fannie eased onto the saddle. Positioning the toes of her boots in the stirrups, she adjusted her grip on the buck rein. The familiar feel of her own saddle provided small comfort, as she poised her body against the cantle, her legs gripping the horse's girth. She signaled, and the gate opened.

The ride that followed is recorded in rodeo annals as one of the best ever made by a woman—or a man. Fannie rode the murderous horse, never losing control, never sacrificing balance and style. When the hazer pulled her free in front of the royal box, a thundering ovation measured her triumph. She saluted the audience with a bow and a wide sweep of her hat. When she looked up, she saw a scene that made her catch her breath—her mother seated beside the Duchess in the royal box, the feather on her hat bobbing merrily as the tiny woman joined in the applause.

The judges' decision came almost immediately. "The Lady Bucking Horse Champion of the World . . . Fannie Sperry!"

As Fannie accepted congratulations, her mother pushed through the throng of well-wishers to embrace her triumphant daughter. Then smiling slyly in anticipation of Fannie's question on her appearance in the royal box, she explained that she had met artist Charlie Russell in the exhibition building where his paintings were being shown with those of Edward Borein, and he had escorted her into the royal accommodations at the Duke's invitation.

Rachel Sperry continued to beam with pride as Guy Weadick led Fannie toward the judges' platform where she was presented with a check for $1,000, a saddle hand tooled with roses, and a gold buckle engraved "Lady Bucking Horse

COURTESY FAMILY OF FANNIE SPERRY STEELE

PHOTO BY TONA BLAKE

COURTESY FAMILY OF FANNIE SPERRY STEELE

(Counter-clockwise, beginning upper left) ***With her horse Napoleon, Fannie Sperry shows off the saddle, bridle, and gold belt buckle that were presented to her with the title of Lady Bucking Horse Champion of the World at the first Calgary Stampede in 1912. She was also awarded a cash prize of $1,000. Fannie Sperry Steele*** **(second row, far left)** ***and other performing cowgirls pose with Buffalo Bill Cody during the 1916 Chicago Shan-Kive (an Indian expression meaning Good Times), where the veteran showman made one of his last appearances headlining the event that featured the best of the wild-west shows. Memories of her years on horseback light the eyes of Fannie Sperry Steele shown here shortly before her death in 1983 at age ninety-five. She considered her life the finest she could have lived.***

COURTESY FAMILY OF FANNIE SPERRY STEELE

The Montana Girls racing team adopted black riding bloomers that were considered scandalous in 1907 when Fannie Sperry* (right) *set the women's relay-race record.

Champion of the World, Calgary, 1912."

But the applause, the prizes, even the championship, were not the most important aspects of Fannie's experience at Calgary. She had won the respect of the finest riders in the West. She had proven her skill among her peers. Nothing could ever take that away from her.

The following year, Fannie married cowboy/promoter W. S. (Bill) Steele. After she successfully defended her world title at Winnipeg in 1913, Fannie and Bill toured with their own small wild west show. In 1916 Fannie rode in New York City's first stampede at the Sheepshead Bay Speedway and at the Chicago Shan Kive where Buffalo Bill Cody made one of his last appearances.

In 1926 about the time stampedes and round-ups came to be called rodeos, Fannie Sperry Steele, at thirty-nine, gave up competitive bucking-horse riding to operate a guest ranch near Helmviile, Montana. There she packed dudes and hunting parties into the rugged Rocky Mountain wilderness until she was well into her seventies. Elected to the Cowboy Hall of Fame in 1976, she died in 1983 at the age of ninety-five.

BIBLIOGRAPHIC NOTE

Adapted from *To Chin the Moon*, Dee Marvine's recently completed biographical novel on the life of Fannie Sperry Steele, this piece was researched with Tona Blake and Elizabeth Stiffler from letters and photographs, stampede programs, newspaper accounts, and interviews with Fannie, her family, and old-timers who knew her.

Dee Marvine *is a former Chicago editor who now lives and writes in Big Timber, Montana. She also conducts editing workshops throughout the Western states.*

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For general information about women's rodeos write to: Women's Professional Rodeo Association, Lydia Moore—Executive Secretary, Route 5, Box 698, Blanchard, OK 73010 or telephone (405) 485-2277.

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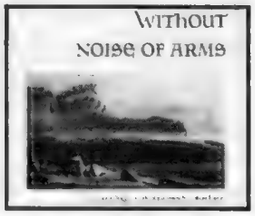

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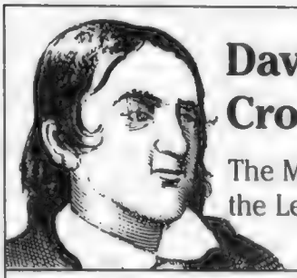

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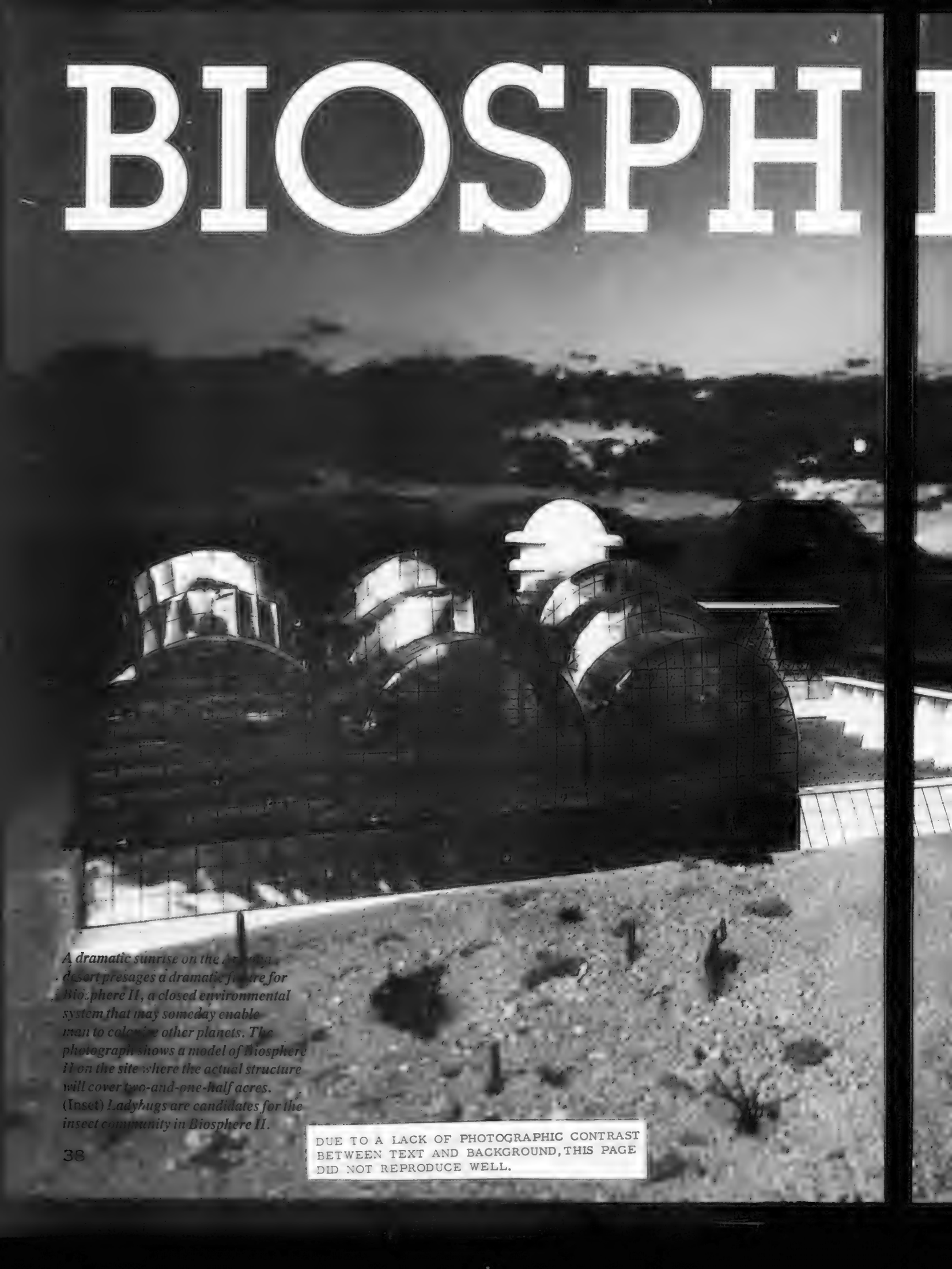

A dramatic sunrise on the Arizona desert presages a dramatic future for Biosphere II, a closed environmental system that may someday enable man to colonize other planets. The photograph shows a model of Biosphere II on the site where the actual structure will cover two-and-one-half acres. (Inset) Ladybugs are candidates for the insect community in Biosphere II.

DUE TO A LACK OF PHOTOGRAPHIC CONTRAST BETWEEN TEXT AND BACKGROUND, THIS PAGE DID NOT REPRODUCE WELL.

ERE WE II

Our Western home in outer space

by Jim Robbins

BIOSPHERE II

In a greenhouse on site, Bernd Zabel inspects a tank of **Tilapia.** *Candidates for Biosphere II, the fish are being grown to assess their suitability as food for Biospherians.*

IN DECEMBER OF 1989 EIGHT AMERICAN SCIENTISTS will enter a two-and-a-half-acre glass enclosure on a sun-drenched ranch in the southern Arizona desert. They'll seal the airlock behind them. For two years the inhabitants of this closed environmental system known as Biosphere II (Earth is Biosphere I) will be totally dependent on the mini-planet for their every need. Barring medical emergency, no one will leave the structure. Supporters of the project see it as nothing less than a way to allow life on earth—not just humankind but all life from microbes to mammals—to colonize the moon, other planets, and eventually other star systems.

The force behind Biosphere II is John Allen, the executive chairman of Space Biospheres Ventures (SBV), a private, for-profit company that directs the project. SBV believes that a biosphere (a self-contained living system) as opposed to the more traditional metal space station, will be a superior space colony. Once it is established, it is a self-sufficient system that will seldom, perhaps never, need resupplying. And, argue the people at SBV, it is more human.

"Humans have evolved in the context of a biosphere—surrounded by the beauty, the diversity, the vitality and the mysteries of nature," says Margret Augustine, Project Director and Chief Executive Officer of Space Biospheres Ventures and co-architect of Biosphere II. "Our future in space will depend both physically and psychologically on habitats that provide not only air, water and food but a stimulus to wonder and to learn about the sphere of life of which we are part."

Heady stuff. But while some people will surely consider John Allen and his ideas of planetary colonization as outrageous, many people are deeply devoted to the science that Allen and his associates have undertaken, as well as his reasons. A testament to those convictions is the fact that the seven-year, $30 million Biosphere II enterprise is entirely privately funded. One of the primary backers of Allen's ideas is Edward P. Bass, a free thinker and the youngest of four oil-rich Texas Bass brothers, who as a family are reportedly worth some $4 billion.

The construction of the world's first large-scale closed environmental system is an ambitious undertaking. Nothing remotely near its scale has been tried before, and the only successful closed system today has involved shrimp, algae, and microbes in a sealed glass sphere slightly smaller than a volleyball. While space colonization may seem esoteric, the Biosphere project is a very practical scientific enterprise. Though nearly everyone involved in space exploration says biosphere research is axial to America's future in space, no one, aside from the Russians, is doing this kind of research on a large scale, largely because of the cost. The National Aeronautical and Space Administration is closely monitoring the project, and has praised the cutting-edge work going on in southern Arizona. Several of America's top scientists—Dr. Walter Adey of the Smithsonian Marine Systems Laboratory and Dr. Ghillean Prance of the New York Botanical Garden, among others—are designing different sections of the Biosphere, and many more scientists are interested in the results of the two-year project.

There are hard-headed financial reasons behind this venture as well, for one of the more practical goals of SBV is to market these self-sustaining biospheres. And in the course of development, SBV is evolving a number of different cutting-edge technologies for agriculture, air and water monitoring, and high-tech construction—which they believe will find a ready market.

SBV sees myriad other benefits from the project. The opportunity for ecological research, according to some of the biologists and botanists involved in the project, is mind-boggling. Perhaps most important, they say, is the likelihood of redefining the way we see our place on Earth: the reduction of the Earth's fragile natural systems to a human level will allow people to see and scientists to study, for the first time, exactly how life on the planet is interrelated and how the disruption of certain aspects of the cycle can affect other parts.

Space Biospheres Ventures is under the auspices of the London-based Institute of Ecotechnics that examines ways mankind and his technology can co-exist with Earth and not destroy it. The Institute in turn is largely a product of the vision of John Allen, a fifty-eight-year-old American philosopher, playwright, scientist, and thinker with a cosmic sense of destiny. Physically this Oklahoma native is a big man; he played center on the Colorado School of Mines football team. He is, from description, a kind of New Age Renaissance man. He has an MBA from Harvard Business School. He's a trained metallurgist, engineer, and management consultant and has worked for David Lilienthal, who was the nation's first director of the Atomic Energy Commission. Allen counts architect Buckminster Fuller and beat poet William Burroughs among those who influenced him, and he has written plays and recorded avant garde jazz music under the pseudonym "Johnny Dolphin."

BEHIND THIS GRAND UNDERTAKING AT SBV IS THE idea that Earth is a biosphere—all its forms of life (including man) interplay and work together as one large system. Life is not simply adapting to its environment as Darwin postulated, the theory holds, but life an

PHOTO BY PETER MENZEL

BIOSPHERE II

Researchers in the tissue-culture laboratory clone plants from unspecialized cells to select the best for intensive agriculture in Biosphere II to provide food for its inhabitants.

environment are mutually influencing each other. A fundamental aspect of the biosphere theory is that life on this planet has the elemental goal of perpetuating itself, as well as a tendency to expand to fill all available eco-niches (a trait that the Russian biologist Vladimir I. Vernadsky called the "pressure of life"). A simple example: lichens break down rocks into soil and allow small plants to gain hold, which in turn allow larger plants and eventually trees to become established.

Allen takes the hypothesis much further. For one reason or another, Allen says, it's inevitable that Earth will one day cease to support life. Some scientists predict, for example, that within five billion years the sun will burn out. Or man may destroy the planet much sooner—perhaps with nuclear weapons. One of Allen's key points is that space biospheres, when transplanted to other worlds, are the logical extension of "the pressure of life," a way for the biosphere to hedge its bet against such a collapse. Earth "is doomed to die unless it can birth offspring that can escape to other stars," Allen writes.

Because there is water on Mars in the form of ice, Allen has chosen that planet as the first object of colonization. By ferrying at first a single, and then a fleet of biospheres to Mars, Allen proposes that life can gain a toehold there. Perhaps someday, as science advances, British scientist Dr. James Lovelock suggests that microbes and the higher forms of life may be able to colonize the planet Mars. Bacteria will be introduced to begin the process that began on Earth billions of years ago, enhanced and hastened by man: life itself will moderate the harsh Martian temperatures. This process of allowing organisms to make Mars able to sustain life from Earth is called "terraforming."

Allen envisions that biospheres can begin settling on Mars in the 1990s. He even has several Martian locations in mind, picturing them as if he were a realtor describing a scenic area where lots for summer cabins are for sale. For example, Coprates Canyon is "an ancient tributary grand canyon system which dwarfs our own—it stretches over 2,500 miles, is 120 miles wide and is two miles deep. Another breathtaking location would be Olympus Mons—the largest known mountain in the solar system—a volcano over 400 miles across and fifteen miles high. That makes it almost three times the height of Mount Everest and about the size of Colorado!"

Russell (Rusty) Schweickart, a former astronaut who is a paid consultant to the Biosphere II project, endorses Allen's vision and says the SBV Biosphere II project is fundamental. "In terms of human settlement on other planets biospheres will be essential."

The National Commission on Space, a Presidential study group looking toward the space future of America, with no financial ties to the project, sees people living on Mars and the moon within half a century. "To explore and settle the inner solar system we must develop biospheres" the report says, and goes on to praise Biosphere II.

There has been precious little criticism of Space Biosphere Ventures' Biosphere II project. The science behind it, most agree, is extremely strong. If it has a drawback, says Dr. James Bredt, Manager of Controlled Ecological Life Support Systems for the Life Sciences Division of NASA, it is that the biosphere is too much, too soon, to be of use to the federal space program. For NASA's use, Bredt said, "It has to be small, light and energy-efficient. . . . I don't think you could envision shipping the components of a five million cubic foot building to Mars."

Biosphere II would not come in, Bredt predicts, until some time after the first colony on the moon or Mars. "Even if we establish a lunar base, it would take fifty years for the industrial base to build up to the point where you could build something the size of Biosphere II." Though SBV is ahead of themselves, Bredt says, "It'll work. They are doing everything right. You can't help but admire their enthusiasm. If anyone can make it work, I'm sure they can."

SUNSPACE RANCH, IN THE FOOTHILLS OF THE SANTA Catalina Mountains, overlooks the scenic, remote, and rocky Canyon Del Oro valley, an hour's drive from the sunbelt sprawl of Tucson. The broad valley is carpeted with a variety of cactus: saguaro, prickly pear, cholla, and barrel cactus. Deer, coyote, javelina, and a myriad of bird life wander the desert.

Next to the hillside where Biosphere II is being built is the futuristic-looking tissue-culture laboratory where scientists are researching cloning techniques on plants. Beyond that structure, in a little draw, is a collection of different facilities: a 12,500 cubic foot biosphere test module being used to test different aspects of the full-scale structure and a warm, moist 17,000 square-foot greenhouse where SBV is experimenting with different agricultural techniques.

Biosphere II will occupy two-and-a-half acres or 98,000 square feet, with a volume of five million cubic feet. There will be seven different biomes, or biological communities, under one continuous glass roof. The glass panes will be set in a metal frame and then fastened to a skeletal framework of plastic-coated hollow steel tubes ("space frame"). The floor of the structure will be an impermeable liner, perhaps stainless steel or fiberglass. To keep the closed system working, it's critical that the biosphere be tightly sealed to prevent

PHOTO BY PETER MEHLER

BIOSPHERE II

interchange with the external environment, which may be one of the most difficult aspects of construction. The goal of SBV is that Biosphere II have a lifespan of at least 100 years.

Because it would be difficult to keep temperate biomes cool in Arizona, the Biosphere will contain only tropical biomes. On the west end of the Biosphere, and highest in altitude, is tropical rainforest (the first of the seven wilderness biomes) which includes a fifty-foot mountain and a small lagoon. The ceiling will be approximately eighty feet high, with 20,000 square feet of floor space. Banana and papaya trees and a variety of canopy trees will grow here. The rainforest is being designed to include as many species as possible with medicinal attributes, for use by the Biospherians.

Water from the moist rainforest collects first into a small lagoon and then runs as a small stream from the rainforest through tropical savanna, a region characterized by grasses and small shrubs. From there it meanders through a fresh water marsh, oxbows through a salt water marsh, and then empties into a thirty-five foot deep salt water ocean. Beyond the marshes is a small thorn scrub environment, and further yet and last in line is the larger desert biome.

The design of the wilderness biomes in a line, with the rainforest highest in altitude and the others progressively lower, is purposeful, to facilitate the movement of moisture by convection. Because warm air is less dense than cold air, it will rise from the desert and move toward the higher rainforest, picking up moisture along the way that is evaporating from the ocean. When the warm moist air reaches the roof of the rainforest biome, refrigerated coils will cool the air, causing the moisture either to fall as misty rain or condense on the plants. SBV believes the closed cycle will perpetuate itself. Although natural systems will be used as much as possible, mechanical circulation will be necessary for some wind, and electricity will be used for pumping water and cooling. SBV plans to rely on solar energy.

Off to the side of the wilderness biomes are the human habitation area and an intensive agricultural settlement. The four-story, white-domed, human habitat with a profile that looks as if it might have been inspired by the Taj Mahal, contains apartments for the researchers, workshops, laboratories, and a library. The people inside will be in constant contact with scientists monitoring the project externally, via telephone and computer. When problems arise, and project sponsors expect to deal with many problems until they work the bugs out, those inside and out can work together to solve them.

The social questions inherent in a project that finds people living inside a terrarium for two years are numerous. If people

In a luxuriant experimental greenhouse, researchers cultivate papaya trees and other plants that thrive in tropical biomes for possible inclusion in the two-year Biosphere II project.

DUE TO A LACK OF PHOTOGRAPHIC CONTRAST BETWEEN TEXT AND BACKGROUND, THIS PAGE DID NOT REPRODUCE WELL.

PHOTO BY PETER MENZEL

BIOSPHERE II

An architectural drawing shows the plan for Biosphere II: from left, the rainforest, ocean and savanna, marshes, thorn scrub, and desert. Below, human habitat and garden.

are picked for their scientific ability, what about their personal relationships? Will Biospherians be celibate for two years? So far those and other questions have not been publicly addressed, and SBV officials say a policy statement on the management of the two-year experiment will not be available until early 1988.

THE ENVIRONMENTAL RESEARCH LABORATORY (ERL), a nonteaching division of the University of Arizona, is one of the prime contractors on the Biosphere, through Oasis Systems International Corporation, an arm that supplies private companies with technologies and expertise developed by ERL. The role of ERL is to look at how the Biosphere will maintain human life by growing enough food, yet not polluting the tiny, closed environment with chemical fertilizer or pesticides.

Food will come from a section of the biosphere devoted to intensively grown fruits and vegetables. Pleasures are also provided for: grapes are being grown for homemade wine, and terrarium inhabitants will wake up in the morning to the smell of just-picked coffee. Cocoa plants will be grown for chocolate. Fish will be netted from the mini-ocean for seafood. Chickens and goats will provide eggs, milk and meat. "The goats will be fenced in or otherwise they'll eat the rainforest," said Kathleen Dyhr, director of information systems for SBV. "You know how goats are."

Plant tissue culture will play a pivotal role should the SBV Biosphere get off the ground. Consider an orchid. In order to clone an orchid, or any plant, a small piece is cut from a growing orchid tip. At this stage these young cells are unspecialized—any of them can be cultured into a complete orchid. Later on these cells will become specialized—some will become the flower, others the stem, and some the leaves. The young undifferentiated cells are divided and placed in nutrient-filled water, each to become a plant.

The technique will play a significant role in the Biosphere project. If you had twenty tomato plants in the Biosphere and all of them except one or two came down with a serious disease, you could immediately slice off a growing tip from the healthy plant and begin culturing, rather than waiting for the healthy plants to grow tomatos and then planting the seeds. This makes the technique ideal for the rapid regeneration of plants in space colonies on a distant planet.

Biosphere II will also be home to some 600 terrestrial vertebrate species. Biospherians would like to include some kind of wading bird, a song bird, an owl, a small mammal, such as the tiny African deer, the dik-dik, lizards, and turtles. Researchers might also include a small primate, perhaps a lemur or a marmoset. A pair of each species will be taken, and success will be measured by whether these species can reproduce.

A number of insect species will be included in the terrarium. There was a good deal of debate among biologists about whether to include mosquitos. Although no one wanted to include the pests, there was a realization that they are found in almost every ecosystem. No one is quite sure what role they play, but, for safety's sake, the Biosphere may include a non-biting variety of the pest.

Though the people who make up SBV and the related projects are deeply committed to increasing the likelihood of life to survive by colonizing Mars, they are also interested in the more mundane subject of turning a profit—potentially, researchers say, a rather substantial profit. Foreign space programs, research institutes, governments, and universities have already made inquiries. Spin-off projects may include everything from the method of sealing the glass panels to cookie-cutter replicas of Biosphere II. "My vision is that every high school will have its own biosphere," says Carl Hodges, director of ERL, pointing out one likely application. "It will be a major learning tool."

Whether or not SBV biospheres become outposts of civilization on Mars or seeds of terrestrial life that journey to far-flung planets, the project will bring inestimable benefits to the inhabitants of spaceship Earth, according to Hodges. "I think the most important thing is that Biosphere II will give Biosphere I a biosphere to talk to," he says. "One of the problems with Biosphere I is that we don't have a Biosphere II to compare it with. Biosphere II will create tremendous change in how we think about Biosphere I. It will almost be the same as when we first looked back from a spaceship at our little blue ball and understood the oneness of it. This will help us understand the interconnectedness of it all."

BIBLIOGRAPHIC NOTE

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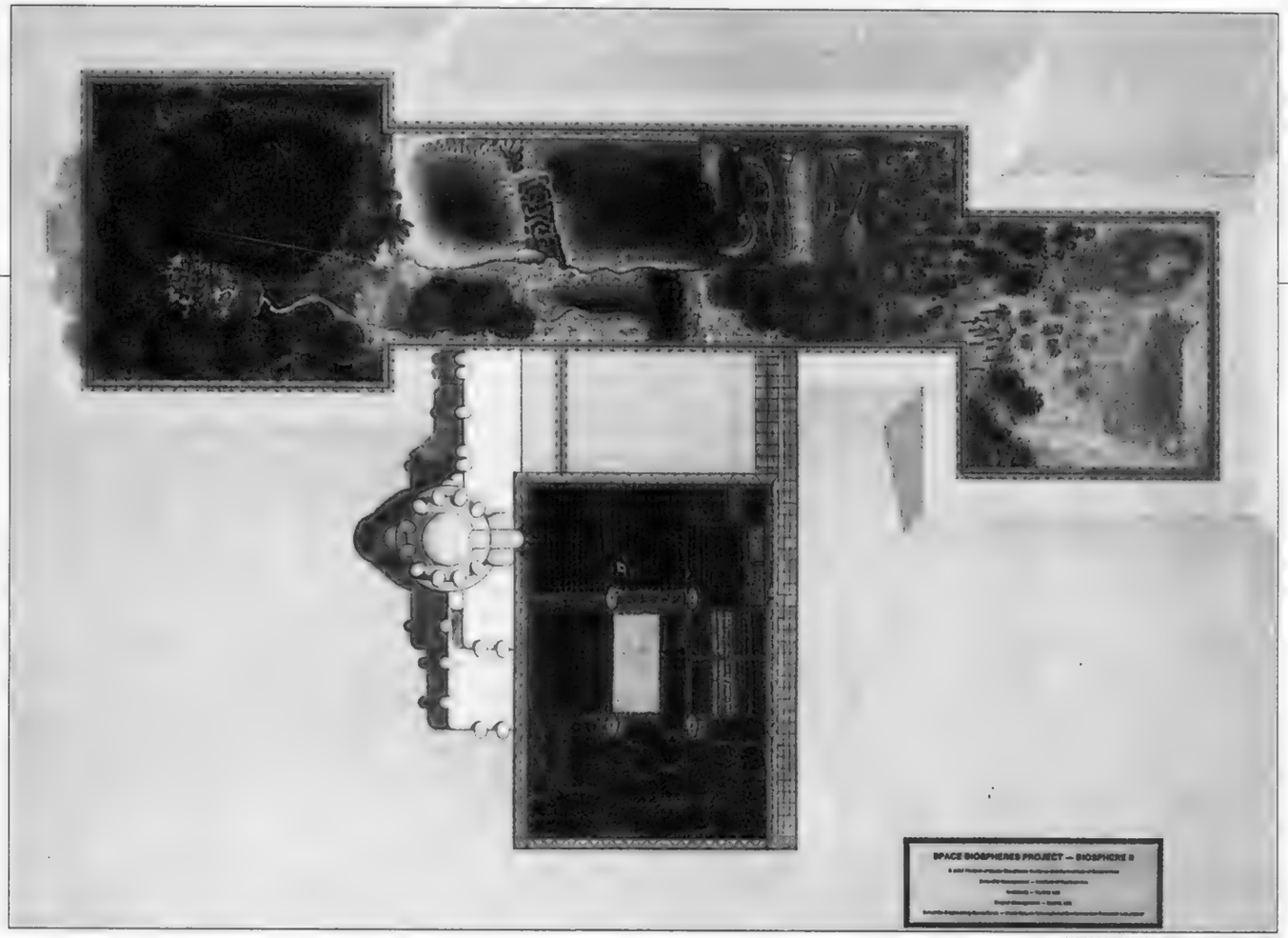
Additional sources: J. E. Lovelock, *Gaia, A New Look at Life on Earth* (Oxford Univ. Press, 1979). Lynn Margulis and Karlene U. Schwartz, *The Five Kingdoms of Life* (W. H. Freeman, 1981). Vladimir Vernadsky, *The Biosphere* (London: Synergetic Press, Inc., 1986).

Jim Robbins *has written about the West from Helena, Montana, for the* New York Times, Chicago Tribune Magazine, *and other publications.*



COURTESY SPACE BIOSPHERES VENTURES

WHEN YOU GO

Due to heavy research schedules, the Biosphere II Project does **not** *offer tours to the general public at this time.*

However, a tour of the Project is offered to every conference in residence at SunSpace Ranch. A full-service executive conference center, SunSpace Ranch Conference Center is on the site of the Biosphere II Project. The Center is proud of its quality cuisine, comfortable suites and meeting rooms, leisure hour facilities, and inspiring mountain and desert views — all resulting in an atmosphere conducive to creative work and study.

Many national and international organizations have scheduled conferences at SunSpace, such as NASA, NATO, Smithsonian Institution, and American Institute of Architecture. For information and rates, write to Sandra Parker, Conference Center Manager, SunSpace Ranch, P.O. Box 689, Oracle, Arizona 85623. Call (602) 622-0641 or Telex 506943 SUNSPACE TUC.

Anyone in Washington, D.C., who is interested in the Biosphere II Project may visit the Museum of Natural History of the Smithsonian Institution to see two relevant displays: "The Living Coral Reef" is a prototype of the marine system of Biosphere II, while "The Chesapeake Bay Exhibit" is a working model for the marsh systems of Biosphere II. You must request to be taken to the latter exhibit, as it is in an area not usually accessible to the public.

An unusual eight-day project called "Space on Earth" is offered by Society Expeditions Space Travel Company. The escorted tour includes visits to the Space Camp in Huntsville, Alabama; the Johnson Space Center in Houston, Texas; and Biosphere II Project near Tucson, Arizona. In each case, aerospace experts will discuss the past, present, and future of the U.S. space program, and participants will train on some of the same machines that the astronauts use. Departure dates for the expeditions are October 17, October 24, and November 7. Cost per person: $1690 plus airfare from Huntsville of approximately $248. For information write to Society Expeditions, 3131 Elliott Ave., Suite 700, Seattle, WA 98121 or phone (800) 426-7794.

WESTERN LOOKOUT

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BEFORE RENOVATION

COURTESY LIVINGSTON DEPOT FOUNDATION

Celebrate Yellowstone Days at Historic Livingston Depot

On July 1, Livingston, Montana, will open the doors to its newly renovated Depot Center, the centerpiece of the town's historic district. Once operated by Northern Pacific Railway as the gateway to Yellowstone National Park, the grand terminal and its annexes fell into disuse after passenger service to the depot ceased in 1979. The complex was donated to the City of Livingston in 1982. Civic interest and pride in the historic structure led to the organization of the Livingston Depot Foundation, which now owns the buildings.

The center was originally designed by the same architectural firm that created New York City's Grand Central Station. The interior of the Italianate-style main terminal building has been returned to its former glory, the mosaic trim and terrazzo floors repaired, and converted into an exhibition hall. The "beanery" and baggage annexes have been remodeled into a commercial restaurant and office space.

To celebrate the opening of the Depot Center, the Buffalo Bill Historical Center in Cody, Wyoming, has installed a permanent satellite exhibit, "Yellowstone Days." Indian artifacts, historic firearms, and paintings by artists like Thomas Moran, Charles Russell, and Albert Bierstadt trace the development of the Yellowstone region from the days of the Indians to the growth of the mining, cattle, and railroad industries. A special section recounts the history of Yellowstone Park.

The grand opening coincides with the Livingston Annual Round-up Parade and Rodeo, scheduled for July 2–4.

Rare condors trapped for breeding. All but one of the California condors left in the wild have been captured by wildlife authorities, who hope to save the large vultures from extinction by breeding them in captivity. The California condor population has been steadily declining over the years. An adult male condor caught late last winter was taken to the San Diego Wild Animal Park, which coordinates its breeding program with the Los Angeles Zoo. The park and the zoo are the only facilities holding California condors. Each houses thirteen of the endangered birds, whose habitat is in the mountains of southern California.

It's a dog's life. Most Westerners are familiar with the sight of a faithful hound dog riding in the back of a pickup truck, ears blowing in the wind as the driver zooms down the road. Recently, Republican legislator Kathi Williams introduced a bill to the Colorado House of Representatives that would ban the practice statewide. She did so at the urging of constituents who are concerned about the danger posed to the dogs. According to Peggy Sawyer of the legislature's Majority Research Office, opponents of the bill claimed that the government was intruding into the rural way of life. Due to all the hullabaloo, the bill turned out to be all bark and no bite — worried about the legislature's image, a committee nixed the bill nine to two before it could be put to a vote in the House.

Mining Hall of Fame opens. In late summer or early fall, mining buffs and tourists visiting Leadville, Colorado, will have their first chance to tour the National Mining Hall of Fame and Museum. The new facility will honor mining pioneers and feature geologic, mining history, and placering displays. An ore train will take visitors through a full-scale model of a mine, while other exhibits will show the uses of different minerals and energy fuels. According to chairman Douglas Watrous, Leadville was chosen as the museum site over other cities like Butte, Montana, and Lead, South Dakota, because of the town's close proximity to a major metropolitan area, Denver, and the solid support the project received from the community.

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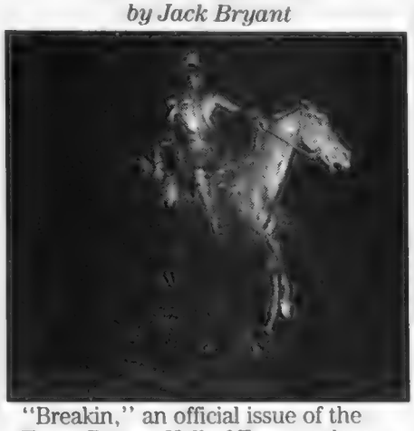

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The trip runs July 18–23 and August 8–13, 22–27, and 29–September 3. Rates are $723 (U.S.) per person, based on double occupancy. The surcharge for single travelers is $190 (U.S.). Rates include five nights accommodations and all meals and snacks while cycling. For $58 (U.S.), a Miyata eighteen-speed bicycle may be rented.

Conditioning before the trip is strongly recommended. For reservations and more information, contact Rocky Mountain Cycle Tours, P.O. Box 1978, Canmore, Alberta, Canada TOL OMO, (403) 678-6770.

BADLANDS DESPERADO TREK. Escape from modern reality this summer and get a taste of the Wild West on a five-day, fast-paced outlaw and lawman chase through the Badlands of South Dakota. The trek is sponsored by Project Dakota of Marshall, Michigan, a historical reenactment group that recreates the West of the 1880s.

Running August 4–8, the trip is part of the Desperado Phase of Project Dakota's research on the land of the Lakota Sioux. Participants may sign up to be members of the posse; at this writing, the outlaw roles have already been spoken for. Both the posse and the outlaws travel through the Badlands by horseback in authentic period costumes. During the pursuit, riders carry blank cartridges in their six-shooters for possible ambushes and confrontations.

For a guideline packet giving more details about the trip and Project Dakota's other activities, send five dollars to Project Dakota, P.O. Box 147, Marshall, Michigan 49068-0147.

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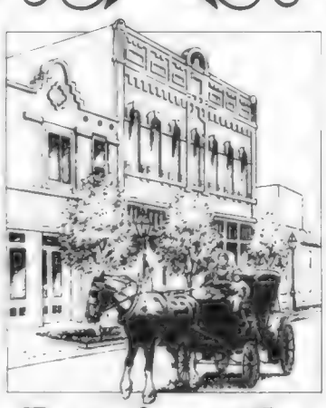

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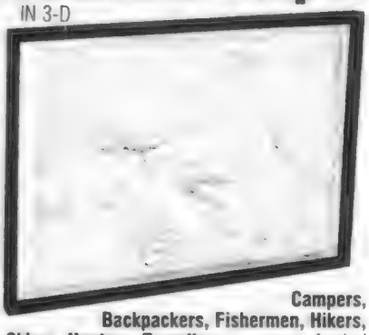

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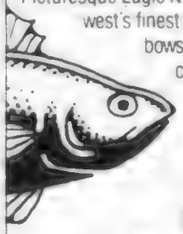

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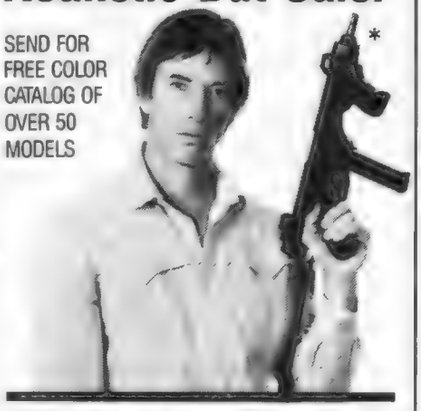

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FROM YELLOWSTONE T

by Jane Easter Bahls

NEXT TIME YOU DECIDE TO DRIVE from Yellowstone to Glacier National Park, plan a couple of extra days to discover the sights in between. The spectacular mountain ranges, quiet lakes, ghost towns and hot springs are as memorable as the parks themselves—and without crowds of people. Setting aside time en route to savor western Montana can add a great deal to the trip.

Any road trip from **Yellowstone to Glacier** will involve some circuitous driving, as the rugged mountain ranges do not permit hundreds of miles of straight highways. The routes proposed here—about four hundred miles each way—are relatively direct, but offer countless scenic vistas to enjoy and historical sites to visit.

Most visitors will want to begin their trip at Yellowstone, as it's closer to most of the rest of the country. After enjoying the attractions of the park, leave through West Yellowstone. Head northwest on U.S. Hwy. 287 past Hebgen and Quake lakes. **Quake Lake** was formed in 1959 when an earthquake slid half a mountain into a canyon, killing nineteen campers and forming a dam across the Madison River. A visitors center tells the story and provides a vista of the natural dam and the lake.

Twenty-six miles further at Ennis, take Montana State Hwy. 287 (known as the Virginia Hill Rd.) west fourteen miles to **Virginia City**, a restored mining town with boardwalks lined with storefront displays of artifacts from the nineteenth century, including an assay office, grocery store, jewelry store, and newspaper office. A narrow-gauge railway provides open-air rides to **Nevada City**, a mining camp reproduced with buildings from all over Montana. The Music Hall is filled with mechanical music machines,

(Above) ***Heading south after enjoying the glories of Glacier, the traveler drives through the Swan River Valley amid great scenic beauty. Illuminated by sunlight, a snowy peak in the Swan Mountains towers over the fir and larch below.***

still operating, and the Steam Railroad Museum displays vintage railroad cars. Stop for lunch or tea in Nevada City at the **Star Bakery Cafe**, located in one of the weathered wooden buildings. (Price range for lunch is $2.00–$7.50. No reservations needed.)

It's well worth the time to spend the night among the Victorian furnishings at the **Fairweather Inn** in Virginia City. Cool your heels on the balcony overlooking the town. (As in many historic inns, the bathrooms are down the hall.) In the evening, don't miss the **Virginia City Players**, a professional troupe offering superb, nineteenth-century entertainment at the Opera House and at the Virginia City Brewery. [A room at the inn costs $28; $34 with private bath. Theater tickets are $7.50 for adults, $3.75 for children. Reservations for both are available by calling Bovey Restorations at (406) 843-5377.]

Continue on to Twin Bridges and jog southwest on Hwy. 41 through Dillon. Twenty miles southwest of Dillon on Rte. 278 is the turnoff for **Bannack**, Montana's first Territorial capital, now a ghost town operated by the State of Montana. Bannack's silent streets—a pleasing contrast to the bustle of Virginia City—are lined with well-preserved wooden buildings. A walking tour provides a fascinating glimpse into the past.

Rte. 278 north takes you through the rolling country of southwestern Montana. Soon after turning west on Hwy. 43 (at Wisdom), stop for a visit at **Big Hole National Monument**, site of a major battle in the Nez Perce War. Stroll the manicured grounds, enjoy the displays in the visitors center, and listen as a ranger tells the story of the fateful battle.

When Hwy. 43 reaches Hwy. 93, head north for a picturesque drive through the **Bitterroot Valley**, flanked by the craggy Bitterroot Range on the west and the forested Sapphire Range on the east. Watch for evidence of a major Bitterroot industry: building log homes. On locations up and down the valley, you can see what look like giant Lincoln Log cabins, in various stages of completion.

Just north of Darby, take a scenic canyon drive to **Sleeping Child Hot Springs**, a large pool of naturally hot mineral water, for a relaxing soak under the sky with mountains all around. (Admission $3 for adults; $2 for children. If you forget your swimsuit, $.50 is the rental.) Lunch is available for a few dollars at a snack bar.

For a fine French dinner in an unlikely setting, stop at **D'Aurias Restaurant**, nine miles north of Hamilton. Right in the middle of the rural Bitterroot Valley, in an unassuming half-timbered building, is this restaurant decorated in French Provincial pinks, with fresh roses amid the crystal. The owner proudly tells of travelers from all over the country who make a point of stopping here to enjoy the extraordinary cuisine. (Dinners average $13. No reservations needed.)

Campers may wish to stay at the **Charles Waters Campground** three miles north of Stevensville on Country Rd. #22. For a hike into the spectacular Bitterroot Mountains, the **Bass Creek Trail** begins as an old road at the head of the campground and follows the creek past a small lake to a lovely view of sheer mountain walls and a cascading waterfall. (Each drainage in the Bitterroots has at least one trail to hike. Most bookstores in western Montana sell guidebooks that describe the trails and how to get to them.)

After enjoying the delights of the Bitterroot Valley, head on north to **Missoula**, where overnight accommodations are plentiful. Located where five valleys come together, Missoula is the home of the University of Montana, considered by many to have the prettiest campus in the country. Save time for a stroll there.

Stop for lunch or dinner at **The Lily Restaurant**. Whether you eat in the New York–style delicatessen on the first floor or the formal dining room upstairs, the food is consistently superb. The menu features seafood in delicate sauces, a wide range of international selections, and unforgettable desserts. (Prices for lunch range from $1.25 to $6.95; for dinner, $6.95 to $14.95. Dinner reservations are recommended at (406) 542-0002.)

At the **Smokejumpers Center** west of Missoula on the grounds of Johnson-Bell Airfield, firefighters from around the country learn the daring skill of parachuting into a blazing forest. Visitors can look behind the scenes through exhibits, photographs, and motion pictures. Guided tours of the grounds, including some of the aircraft used, provide a new perspective on fire management. The Center is a quarter-mile past the airport on Hwy. 10. Tours are free and run hourly, from early June to late August.

Leaving Missoula on Interstate 90, turn north eight miles out of town on U.S. Hwy. 93. You'll be passing through the **Flathead Indian Reservation**, home of 5400 Salish and Kootenai Indians and three times that many non-Indians, who were permitted to homestead the land beginning in 1910.

A side trip to the **National Bison Range**, seven miles off the highway, provides a chance to view a wide variety of animals and learn about preservation of the bison. Drive six miles west on Hwy. 200 from Ravalli, then north one mile on Hwy. 212 to the entrance. Stop at the visitors center to see displays on bison and their near extinction, along with a film on the Bison Range. If you take the hour-and-a-half drive over Red Sleep Mountain, you are likely to see elk, deer,

TO GLACIER AND BACK

and pronghorn antelope as well as some of the 300–500 bison on the range.

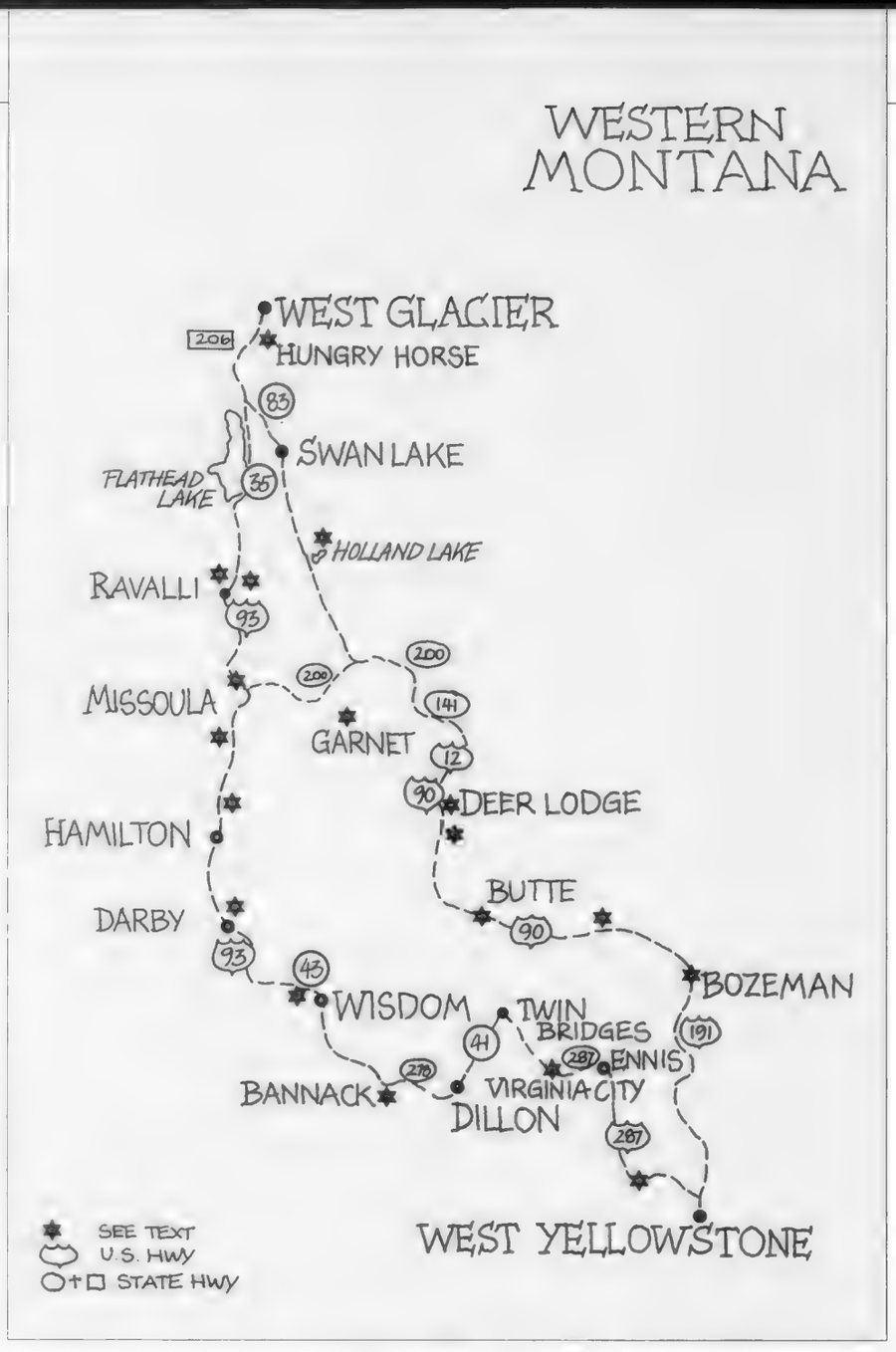
Back on Hwy. 93, three miles north of Ravalli, is the historic **St. Ignatius Mission**, set against the majestic Mission Mountains. Its vaulted ceilings are covered with murals painted by a monk who worked in the kitchen. Displays in the former nuns' quarters on the grounds tell the history of the mission, which was constructed in the early 1890s to provide education for Indian children.

At the southern end of **Flathead Lake**, take Rte. 35 up the east shore for a memorable trip, with the 9,000-foot peaks of the Mission Mountains on the right side and the blue, island-dotted lake on the left. The lake is thirty-seven miles long. In midsummer, stop at one of the many roadside stands to buy a bag of Flathead cherries.

Three miles north of Creston, where Rte. 35 turns west to Kalispell, head north on Rte. 206 until it intersects with U.S. Hwy. 2. A right turn points you toward Glacier National Park.

Make one last stop before Glacier at the **Hungry Horse Dam** for a fascinating lesson in hydroelectric power. (The turnoff to the dam is just before the town of Hungry Horse.) It's one of the tallest concrete dams in the world and provides power for a region that stretches from the Continental Divide to the Pacific Ocean. A self-guiding tour includes an overlook of the turbines and generators as well as a close-up view of the dam.

You'll want to spend several days in **Glacier National Park**, driving over Going-to-the-Sun Road for breathtaking views of rugged mountains and quiet lakes, hiking to see waterfalls, and dining in historic lodges. Accommodations are available both in the park and outside, with reservations recommended in the park. (For information and



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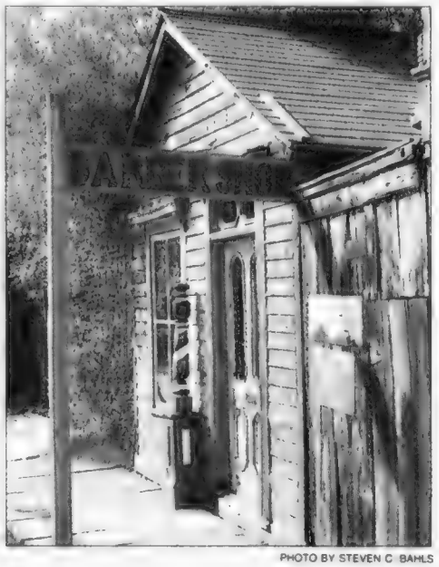

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reservations, call (406) 226-5551 mid-May to mid-Sept. or (602) 248-6000 mid-Sept. to mid-May.) Campers are unlikely to have trouble finding a site.

BACK TO YELLOWSTONE

Heading back out the west entrance of Glacier National Park, go south on the same road you came in. When you come to the turn-off for Hwy. 83, take it to drive south through the **Swan River Valley.** This little-used road offers some lovely views, with Mission Range on the west and Swan Range on the east.

The **Holland Lake Lodge** offers a good lunch in the rustic lakeside dining room. Watch for the turn-off to the left, ten miles south of Condon. The owners tell of people driving a hundred miles out of their way for the Lodge's "gut bomb" deluxe hamburger ($6.95). (Lunch prices range from $1.50 to $7.95; dinners average $10.95. No reservations necessary.)

Ghost town enthusiasts will enjoy taking the scenic drive that leads to the mining town of **Garnet**. The town sits high in the Garnet range. In the late 1890s it bustled with miners and their families, eagerly digging for gold. Now, the town is a hillside full of empty cabins above the silent business district. It's worth a look. Take Hwy. 200 west eight miles to the Garnet Range Road, which takes you through eleven miles of memorable vistas to the Garnet access road, a bone-shaking sample of Montana roads at their worst. Mercifully, this road is only a mile long.

If your brakes–and your nerves–are sound, the **Bear Gulch Road** offers a shortcut to Interstate 90. Otherwise, return the way you came. Driving east on Hwy. 200, south on Hwy. 141, and west on U.S. Hwy. 12 brings you around the picturesque Garnet Range to Interstate 90, and south to the town of **Deer Lodge.**

At Deer Lodge, you can tour the old **Montana Territorial Prison**, where many of Montana's outlaws served their time. Built in 1871, the prison is on the National Register of Historic Places. At the same location, the **Towe Ford Museum** displays every year and model of Ford cars from 1903 to 1953. (Admission to either the prison or the museum is $4; $6 for both. In the summer, admission includes a doll-and-toy museum called Yesterday's Playthings.)

Stop at the **Grant-Kohrs Ranch**, just outside of Deer Lodge, for a look at life at the end of the great cattle era. [See AMERICAN WEST, May/June 1986, "A Ranch Is the Earth" by Patricia Nell Warren.] Now a National Historic Site, the ranch offers free guided tours of the rambling ranch house and its outbuildings, complete with a collection of antique buggies and a working blacksmith shop.

South on the interstate is historic **Butte**, once known as "the richest hill on earth" for its great copper veins. A good way to taste the flavor of this colorful town is to walk through historic Uptown Butte, with its newly rehabilitated buildings. **The Copper King Mansion**, built by billionaire William A. Clark, has thirty-four rooms and a ballroom, all restored and furnished with fine silver, china, Oriental rugs, and paintings. Tours are available seven days a week ($4 adults; $1 children 6–12). Thursday through Sunday nights, visitors can savor a six-course dinner in the mansion. (Cost $12.50–$17.50. Call (406) 782-7580 for reservations.)

Don't miss a look at the **Berkeley Pit**, the nation's largest truck-operated, open-pit copper mine, 7,000 feet long and 1,800 feet deep, which swallowed up whole neighborhoods in the 1970s. A visitors center and viewing stand are on Continental Drive. You may want to pay a visit to **Our Lady of the Rockies**, a ninety-foot statue sitting atop the Continental Divide, the result of six years of spirited labor on the part of local citizens.

The **World Museum of Mining** in Butte features a large collection of antique mining equipment in indoor and outdoor displays. Don't miss **Hell Roarin' Gulch**, a replica of a mining camp around 1900. Admission to both is free of charge. The museum is run entirely by local volunteers.

For an unforgettable return to the past, try supper at the **Pekin Noodle Parlor**, Butte's oldest Chinese restaurant. The tables are still separated by curtains, as they have been since 1916. It's located up a narrow stairway at 117 S. Main. (Supper prices range from $5.00 to $6.95.)

Heading east on I-90, turn off on old U.S. Hwy. 10 at Cardwell for a visit to the **Lewis and Clark Caverns**, vast underground cave formations. The two-hour tour includes a moderate hike up a paved trail to the entrance, followed by a descent down hundreds of steps to the bottom of the cave. (Tickets cost $3 for adults; $2 for children 6–12.)

Continuing on I-90 to Bozeman, take in the **Museum of the Rockies** operated by Montana State University. You can see dinosaur bones, including the skull of a Triceratops, and some excellent exhibits on Indian and pioneer life.

From Bozeman, head for home on the interstate, or take Hwy. 191 back to **Yellowstone**. You'll have learned that in western Montana, getting there is half the fun.

Jane Easter Bahls *is a free-lance writer who covers Western topics from her home in Missoula, Montana.*

PHOTO BY STEVEN C. BAHLS

(From left) ***Gallow frames, once used to support winch machinery, are part of Butte's landscape; the Federal Courthouse is in the background. This barbershop is in Nevada City, Montana, a reconstructed mining camp depicting the glory days of mining. The National Bison Range, north of Missoula, protects a herd of 300 to 500 bison, depending on range conditions.***

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Continued on page 60

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"Doubting Thomas" astronomer sees the light

by O. Richard Norton

PHOTOGRAPHS ARE BY THE AUTHOR

This striking photograph represents a dramatic moment at Puerco Ruin in the Petrified Forest National Monument in northern Arizona. At an ancient sun-watching station set up by the Anasazi, a dagger of sunlight is shining through a narrow opening to pierce a petroglyph and signal the arrival of the summer solstice. Unlike most other solar alignments used by ancient American Indian cultures in the West, this solar event may be witnessed by the general public.

ALL THIS TALK ABOUT INDIAN RUINS WITH BUILT-IN astronomical alignments seemed to me to be a bit far-fetched. I really didn't believe it. This all began some years ago when a few astronomers visited ruins around the Southwest, made measurements of hole positions in the walls of some of the ruins, and then concluded that these early Native American builders were astute positional astronomers centuries before universities with scholarly professors could have taught them the basics. But then, scientists are trained to be skeptics, and I was no different. So with a skeptical mind, I set out to prove to myself that these archaeoastronomers, as they like to call themselves, were guilty of reading twentieth century astronomy into the minds and purposes of pre-Columbian Native Americans.

I mapped out a big circle that would take me to four well-known ruins, all but one jealously and fortunately guarded by the National Park Service. The first was close to home. About halfway between Tucson and Phoenix, Arizona, are the ruins of Casa Grande. (No, it's not named for the nearby city of the same name.) Just off State Route 87 and a half mile beyond the city limits of Coolidge, out among the mesquite and palo verde stands an imposing adobe ruin. The tallest structure, "the Big House," lends its name, Casa Grande, to the Monument. This three-story adobe building and seventeen other ruins were built by the Hohokam about 600 years ago. We don't really know who the Hohokam were, since they seem to have vanished without a trace, although their descendents are probably among the Pima and Papago Indians today.

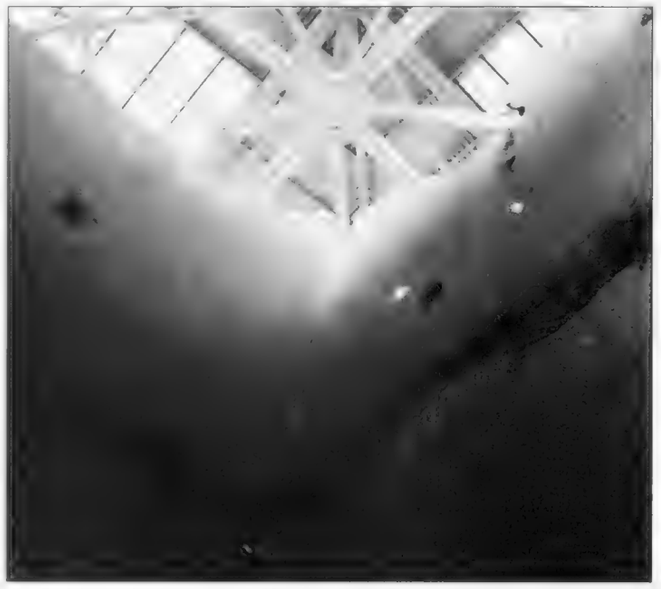
Reportedly built into the Big House were several openings aligned to the rising and setting sun. What intrigued me most were the alleged equinox alignment structures. I called the Monument and talked to the park archaeologist, John Andresen, who kindly gave me permission to observe the sun on the morning of March 21, the spring equinox. So, readying my camera and setting my alarm for 3:30 A.M. (the Hohokam must have been very early risers), I prepared to put an end to all this talk about sun monuments.

I arrived at Casa Grande before dawn and was greeted by the archaeologist who graciously led me to the site. There it was, standing as a black silhouette against the glow of the early morning sky. We entered through a narrow opening that led into a small room. Then, through the west wall of this room we crawled through another opening (these Hohokam were either very small people or liked small doors) that led into a tall rectangular room measuring about ten by twenty-five feet. The ceiling of this room was missing though you could see where the support joists used to be and you could look three stories up to a protective roof the Park Service had placed over it back in the thirties. About three feet above what was the floor line in the third-story room on the east-facing wall was a small hole that was positioned nearly due east toward the rising sun point. Opposite this on the west-facing wall was a second small hole. I had heard that these holes were aligned to the rising sun on the equinoxes.

We had been in the room only a few minutes when the first rays of the rising sun penetrated the distant horizon. The

room brightened appreciably. Then about ten minutes later, an orange elliptical spot of sunlight appeared on the west wall. This was sunlight streaming through the hole on the east wall. Now the real drama began. Slowly over the next ten minutes, this image brightened, became more rounded and moved toward the second hole on the west wall. Closer and closer the image came as the sun rose higher. It appeared to me that at any moment a solar alignment was actually going to take place. I stood poised, my eye glued to the camera eyepiece ready for the moment. Then, it stopped and refused to move closer. The image missed the hole by two inches! John could see my disappointment. When I complained that it wasn't at all fair of the Hohokam to bring me to this brink of expectation, he smiled and gently informed me that I was two days late, that alignments take place beginning several days before the spring equinox, with the last alignment two days before. With that unexpected pronouncement, I realized that I hadn't met Casa Grande's criteria. So, back to Tucson I went to wait out the six months until the sun approached the autumnal equinox. Then, the alignments should occur in reverse, that is, they should begin two days after the first day of fall and continue for several days thereafter.

I was determined to view this alignment. So, as fall 1985 approached, I again prepared to photograph the event, this time with motion picture and still camera. The morning finally came, and again I found myself in the mysterious room awaiting old sol. The sun rose. Its image penetrated the east hole and fell upon the west wall much as I had remembered it six months earlier. Again, the drama began as the sun's image approached the hole. As I photographed the approach, a motion picture camera on a thirty-foot scaffold placed behind the west hole was ready to capture the moment of alignment from the other side. The sun's image touched the rim of the west hole and like a slithering snake it crawled across the inside of the hole and disappeared into the aperture. The motion picture camera whirred. A brilliant flash of light pierced the awaiting hole right on schedule. The alignment was complete. The Hohokam spoke to us that day.



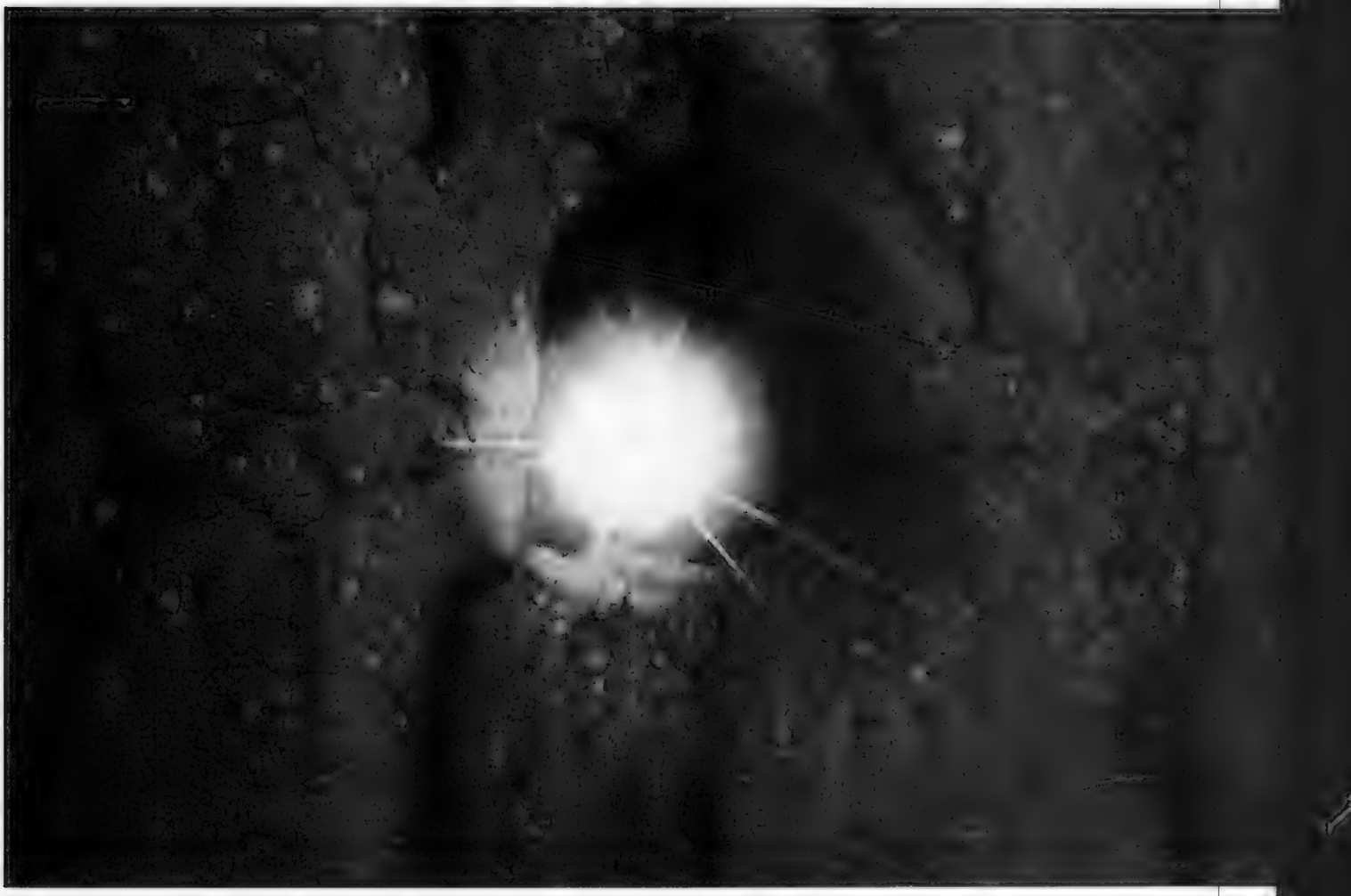
SO THERE WAS INDEED A SOLAR EQUINOX ALIGNment built into the walls of Casa Grande. One simply had to know the game rules to see it. Later that year, on the day of the summer solstice, John and I met again at Casa Grande, this time in a small room running east/west, to witness the setting sun's rays passing obliquely through a west-facing wall. It wasn't as dramatic, but it was a true solar alignment marking the sun's most northerly position on the western horizon. After viewing these alignments myself, I realized with some regret that they are inaccessible to the casual visitor. Special arrangements have to be made far in advance and unfortunately permission can be given to very few.

I left Casa Grande with much admiration for its builders, whoever they were. I wondered why these people wanted to know the time of the equinoxes and solstices, a question that remains unanswered to this day. We can only speculate.

Perhaps the alignments marked the time for planting or harvest or the coming of the rainy season. Or perhaps there was a much deeper, more obscure reason.

My next destination was the Petrified Forest National Monument on the Colorado Plateau of northern Arizona. In the confines of this grand monument to the trees of the Triassic Period are Anasazi (ancestors of the modern Pueblo people) Indian ruins and several alleged solar alignment features. The easiest to find and observe is at Puerco Ruins. There on a rock face chiseled into the dark manganese patina was a four-inch diameter spiral-shaped petroglyph. It didn't appear especially different from many other spirals scattered on the rocks of the area, but this spiral proved to be very different indeed. I was there three days after the summer solstice. At about 9:30 A.M. a bright sliver of light (cast through a space between two boulders just northeast of the spiral) appeared above the spiral and slowly descended. The sliver broadened out as it approached the spiral, finally touching it after some fifteen minutes had elapsed. Then, it penetrated the spiral and touched its center minutes later, signaling the advent of the summer solstice. At that climactic moment I quickly climbed down into the small space between the boulders and the spiral rock, and placed my eye where the spiral was. There I could see the sun precisely centered in the gap between the boulders, a dramatic sight that still lingers in my memory.

(Opposite, top to bottom) ***Inside this "Big House" at Casa Grande Ruin National Monument is a long, narrow room three stories high. A hole high up on the east-facing wall allows a beam of sunlight to pass through to the opposing wall where a second hole receives the sun's image twenty minutes after sunrise near the Vernal Equinox. The top photo shows the interior of the third-story room, with a spot of sun approaching the alignment hole. Moving on, telephoto views show the spot closer to and then entering the hole.*** **(Below)** ***Outside the west wall, a spectacular solar alignment can be seen. The camera is looking due east through both alignment holes.***



Unlike Casa Grande, this event can be viewed by anyone taking the trouble to be there around the time of the summer solstice, June 21. Since the sun is moving due eastward at this time of year it will appear to rise nearly at the same northeast point on the horizon for several days. This means that the event will take place precisely as you would see it on the summer solstice itself as much as a week on either side of actual solstice day. So it isn't necessary to be there exactly on June 21. The National Park Service has provided an observation platform conveniently located above the site, affording a good view for everyone.

So now the score is 2 yea and 0 nay in favor of the archaeoastronomers. I found myself reluctantly becoming a believer. My third pilgrimage was to Chaco Canyon National Monument, also Anasazi, in northwestern New Mexico, where two sites are of considerable interest to the archaeoastronomer. The first is not a solar alignment site but a pictograph, or rock painting, on a sandstone cliff. A three-mile hiking trail through rugged sandstone boulders and dry ravines led me to a sheer rock wall. A cliff some twenty feet above the ground overhangs the wall. On the underside of that cliff, hidden always in shadow is a pictograph that was not discovered until 1972. Made by applying a reddish brown hematite base paint to the sandstone, the pictograph clearly shows a thin crescent moon. To the left (south) of the crescent is a star symbol while above the crescent is a life-sized human hand. Just what was the artist trying to depict? Was he drawing from actual observation? The crescent moon is obvious, but what was represented by the star? Was it the planet Venus or Jupiter in conjunction with the moon? This seems likely since Venus and Jupiter moon conjunctions are fairly common occurrences, but since crescents are relatively rare in Arizona and New Mexico rock art, some archaeoastronomers believe that the crescent indicates a far more significant event. Tree ring dates taken from wood samples from nearby Penasco Blanco Ruins suggest that the area was occupied between A.D. 900 and 1100. Every astronomer knows that a brilliant supernova appeared in the constellation Taurus in A.D. 1054 which was prominently noted in Chinese records. The supernova outburst was so bright that it could be seen in the daytime, remaining visible for two years. Today, in place of the supernova is a rapidly expanding shell of gas called the Crab

At Puerco Ruin in the Petrified Forest National Monument, the manganese-clad rocks are strewn with Anasazi petroglyphs. One spiral petroglyph is so arranged that a sliver of sunlight passing through a gap between two boulders falls upon the opposing rock and slowly descends to bisect the spiral, marking the time of the summer solstice. The top photograph shows how the dagger of sunlight is formed by the space between two rocks. In the second photograph, the light dagger has moved down to touch the spiral. The bottom photograph looks back toward the sun from the spiral location, revealing an impressive solar alignment between the two boulders (a repeat of our opening photo).

Nebula. Some investigators point to this pictograph as a record of the supernova of A.D. 1054, an intriguing but, unfortunately, unprovable idea.

As I stood there gazing up at that rock painting, my thoughts returned to Puerco Ruins. Surely a culture astute enough to notice the motions of the sun through the seasons would have noticed the great supernova. But would they have realized its significance and have thought to record it? Now I began to see how easy it was for a modern astronomer to fall into the trap. Here I was, guilty of interpreting the works and records of the ancient Native Americans through the eyes and mind of a twentieth century astronomer. Perhaps this site was simply a sun-watching station for religious observances that had nothing to do with a supernova or planetary conjunctions.

THE OTHER SIGNIFICANT SITE AT CHACO CANYON I know only through the writings and photographs of others. Unfortunately the site is inaccessible to the public, and today only a very few researchers are allowed access. This site is 400 feet above the floor of Chaco Canyon atop a prominent butte called Fajada Butte, close to the south entrance of the Monument. Near the top of the butte is a sandstone wall containing a large spiral petroglyph and a smaller one, facing northeast. The spiral is protected by three rock slabs that have fallen against the wall containing the spiral. About an hour before noon on the summer solstice, a dagger of sunlight passes through a narrow opening between the rock slabs. As the sun climbs higher, the sun dagger slowly descends across the spiral and finally bisects the spiral shortly before noon. It's easy enough from this observation to conclude that the Fajada Butte spiral is simply another summer solstice marker, but we see here an interesting variation. This is the only known site throughout the Southwest that marks the solstice at noon rather than at sunrise. Is this significant, or is this marker at noon only a coincidence? The real purpose behind these solstice markers eludes us.

The last site I visited is so remote that few people go there. It is situated amid some of the most beautiful scenery in the United States, but to get to the site presents, at times, some formidable problems. It is called the Bighorn Medicine Wheel, situated inconspicuously in the Bighorn Mountains in Wyoming. I became so totally absorbed by the scenery that I nearly missed the obscure turnoff. At an altitude of over 9,000 feet, a blanket of snow hides the trail to the site most of the time. After hiking for an hour or more through the snow (it was early June), I came to a barren plateau at the 9,600-foot level. There on the ground surrounded by a menacing barbed wire fence was a circle of white rocks about ninety feet in diameter. Twenty-eight rock spokes extended from a twelve-foot diameter cairn in the center of the wheel so that the entire structure was reminiscent of a giant wagon wheel. More or less equally spaced around the wheel's perimeter were six other hollow cairns. One of the cairns located in the southwest quadrant was placed several feet outside the rock wheel.

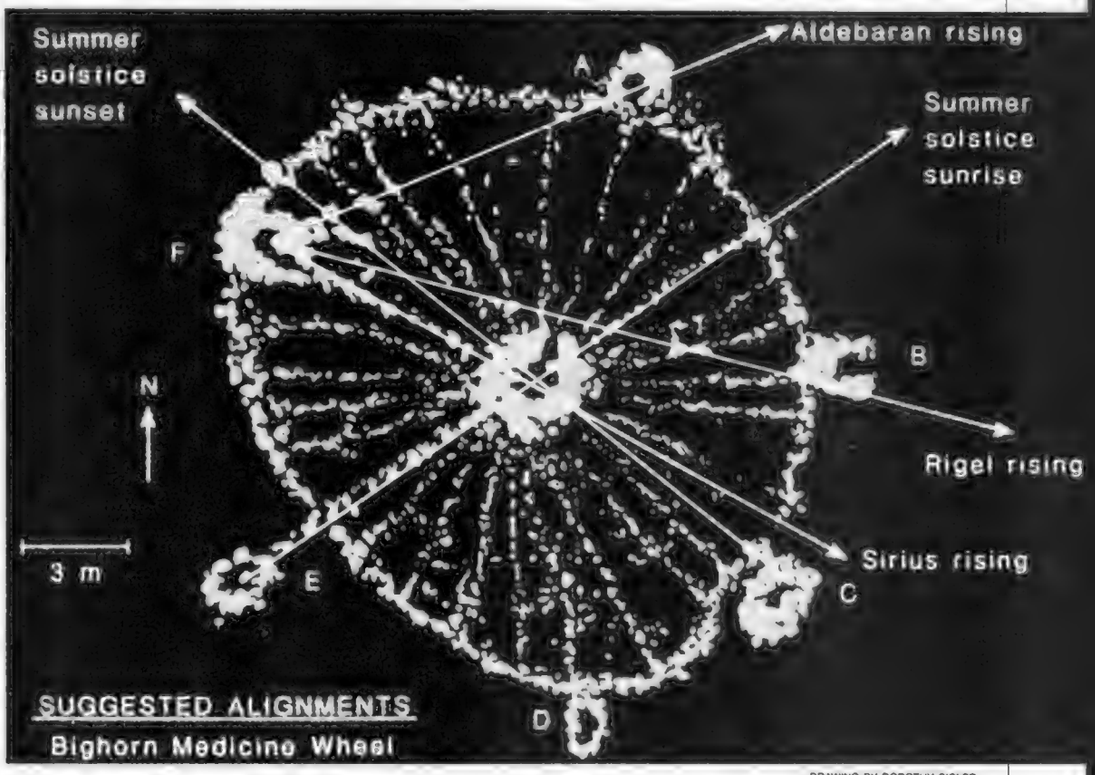
I positioned myself in the center of the southwest cairn,

Twenty feet above a ravine near Penasco Blanco Ruins in Chaco Canyon National Monument is a cliff overhanging a sheer rock wall. Nearly a thousand years ago, an Anasazi artist painted a crescent moon and a star and left his handprint on the underside of the overhang. Some astronomers believe that this Stone Age artist was depicting the Supernova of A.D. 1054.

High atop Fajada Butte at Chaco Canyon is a large spiral petroglyph scratched upon a sandstone wall. Against this wall are three rock slabs so positioned that a thin dagger of sunlight can penetrate between the slabs and fall upon the spiral. This "sun dagger" penetrates the heart of the spiral near noon on the day of the summer solstice.

PAINTINGS OF SUN DAGGER BY DOROTHY SIGLER

The site of the Big Horn Medicine Wheel is a barren plateau in Wyoming's Big Horn Mountains. On the ground an unknown builder placed twenty-eight rows of stones radiating from a central, hollow rock-mound much like spokes of a wagon wheel. Several cairns around the wheel seem to have been placed as alignment markers for the rising positions of the sun and prominent stars near the summer solstice. Below is a fish-eye view of the wheel. The drawing above gives details of the layout.



DRAWING BY DOROTHY SIGLER

and sighting through the central cairn, I could easily tell that this line of sight marked the northeast rising point of the sun near the summer solstice. John Eddy, an astronomer from the High Altitude Observatory in Boulder, Colorado, was the first to note this apparent solstice alignment and considers the odds of a chance placement of the two cairns in this way to be one in four thousand. When I stood in the southeast cairn and sighted through the central cairn, my line of sight to the horizon closely marked the sunset point near the summer solstice. Eddy goes on to suggest alignments of cairns to the rising point of bright winter stars such as Aldebaran, Rigel and Sirius. These stars would rise just before the sun in the summertime, and Eddy points out that these alignments along with the solar alignments suggest an elaborate calendar of sorts.

I stood there shivering in the cold wind and wondered why anyone would construct a calendar on a high plateau that remains uninhabitable for most of the year. What compelled the designers of the Medicine Wheel to take great pains to locate this structure in such a remote, difficult site to be visited by very few? The modern Crow people claim it was built by "people who had no iron." No doubt they were nomadic hunters like the Crow and Sioux after them. Perhaps the builder was a medicine man, and this was a site only his eyes were meant to see. Was this medicine man looking for a high, flat plateau where the horizon was uninterrupted by tall mountains? Here again we search for modern interpretations, drawing on our vast storehouse of knowledge that these remarkable people did not and could not possess.

I freely admit it. I am now a believer. Most of the alignments are obvious, and almost anyone with a little patience and persistence can see them for himself. But what purpose can they possibly have? What practical good is the summer solstice or the rising point of Rigel? Perhaps in these sites lies a hidden religious meaning. Maybe these people were so subtle in their purpose as to elude all modern interpretation. I would like to think that the archaeoastronomers have found within their science the language needed to translate the signs built into these sites. We may now have the means of extending our understanding of these early people.

O. Richard Norton *is an astronomer associated with the University of Arizona. He is founder and president of Science Graphics, a company that designs science teaching materials, in Bend, Oregon.*

WHEN YOU GO

National Park Rangers will be available at Puerco Ruins (in the Petrified Forest National Park, Arizona) from June 20 to 30, 1987, to guide visitors to the summer solstice calendar marker. To view this early morning solar observatory program, you should be at the ruins by 8:30 A.M.; the event occurs at 9:05 A.M. The Puerco Ruins are located on the main park road, midway between the north and south entrances.

While you are in the park, you may want to visit the Painted Desert Museum near the north entrance. In the museum lobby this summer, a paleontology technician will be chipping the plaster away from the fossilized bones of Paratypothorax andressi, *a 225 million year old pre-dinosaur that was discovered in June of 1983, just east of Crystal Forest in the Flattops Wilderness area. The fossilized material was encased in plaster and removed by helicopter. During the summer the 1200 pound block will be prepared and studied, using air-powered chisels and small dental tools. The public is invited to observe.*

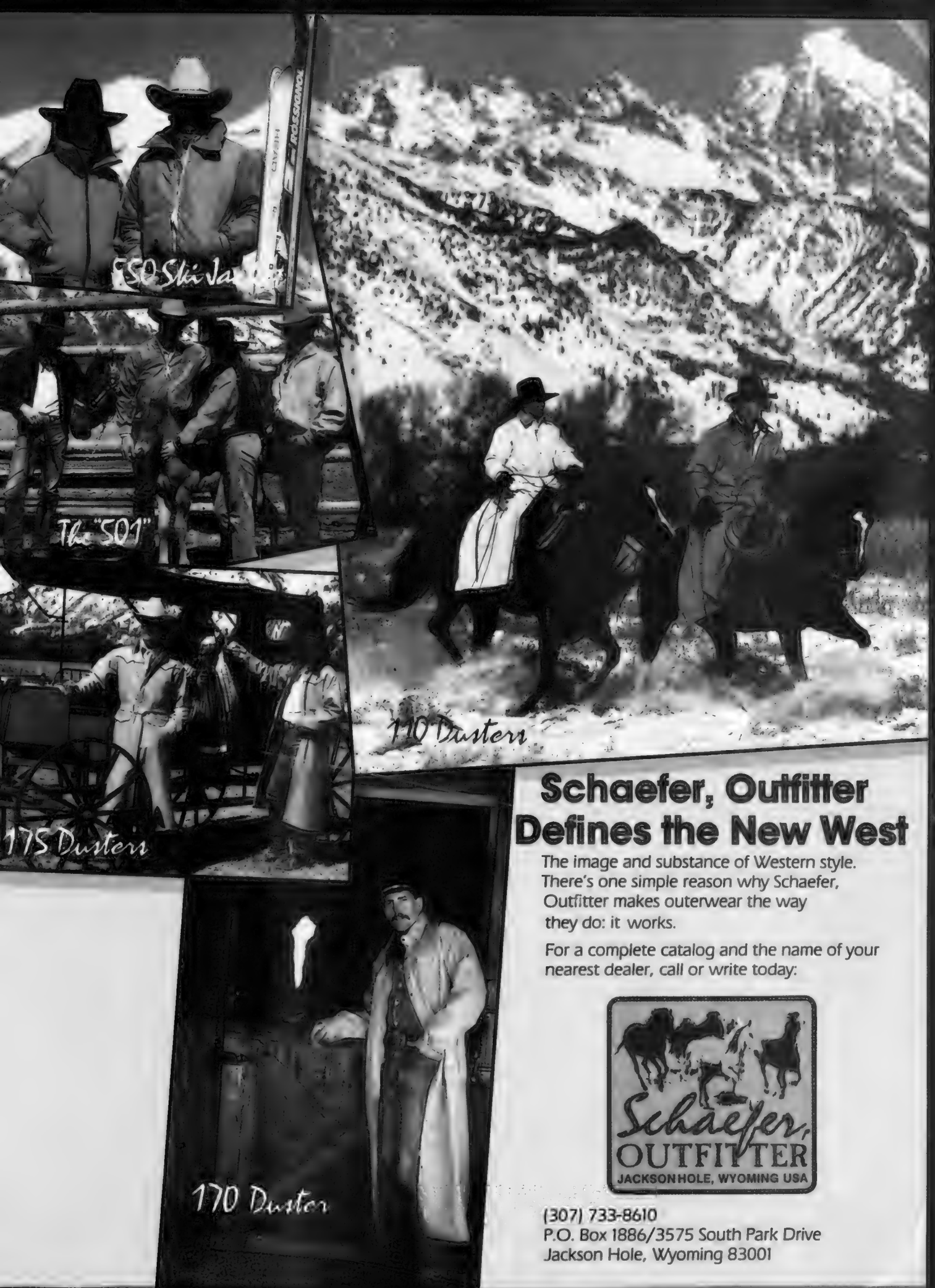
The north entrance to the Petrified Forest National Park is on Interstate #40, about 30 miles east of Holbrook, Arizona. The south entrance is on state route #180, about 20 miles east of Holbrook. Admission fee is $5 per car; $2 per person on a bus; visitors sixty years of age or over can apply for a Golden Age card that admits them free. Upon admission the visitor receives a map of the park.

Among the facilities at the north entrance is a cafeteria. A gasoline station is nearby. The south entrance affords a snack bar, but the gasoline station is sometimes closed.

The solar alignments at Casa Grande and at Fajada Butte in Chaco Canyon may not be viewed by the public, but some literature about each one is available. Also, the two parks offer many additional attractions. Casa Grande National Monument is located about halfway between Tucson and Phoenix, Arizona, just off state route #87, a half mile beyond the city limits of Coolidge. Write to Casa Grande National Monument, Box 518, Coolidge, AZ 85228 or tel. (602) 723-3172. Chaco Canyon is about 54 miles south of Bloomfield, New Mexico, via state route #44 and unimproved state route #57. Write to Chaco Canyon National Monument, Star Route #4, Box 6500, Bloomfield, NM 87413 or tel. (505) 988-6716.

Quality hotels in the Casa Grande Monument area that feature AMERICAN WEST in their rooms are: Stouffers Cottonwood Resort, 6160 N. Scottsdale Rd., Scottsdale, AZ 85253, tel. (602) 991-1414. Westcourt in the Buttes, One Westcourt Way, Tempe, AZ 85282, tel. (602) 225-9000. Tucson National Resort and Spa, 2727 W. Club Dr., Tucson, AZ 85741, tel. (602) 297-2271.

Fine hotels in the Chaco Canyon region that feature AMERICAN WEST in their rooms are found in Durango, Colorado (95 miles away) and in Santa Fe, New Mexico (115 miles away): General Palmer Hotel, 567 Main Ave., Durango, CO 81301, tel. (303) 247-4747. Bishops Lodge, 3 miles north of Santa Fe on Bishops Lodge Road (P.O. Box 2367), Santa Fe, NM 87504, tel. (505) 983-6377. La Fonda, 100 E. San Francisco, Santa Fe, NM 87504, tel. (505) 982-5111. La Posada de Santa Fe, 330 E. Palace Ave., Santa Fe, NM 87501, tel. (505) 983-6351.



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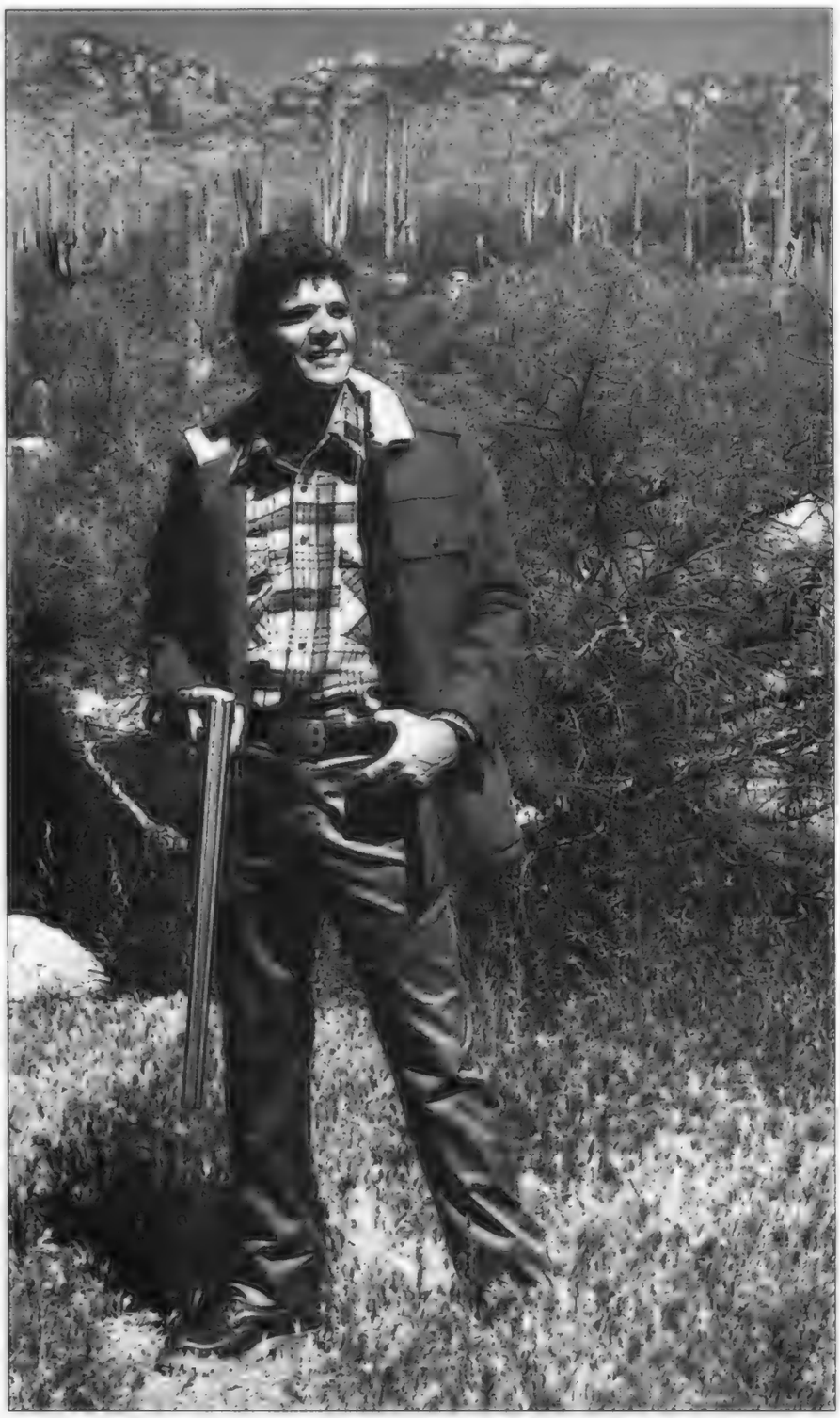

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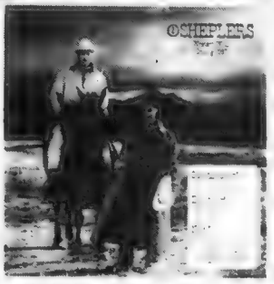

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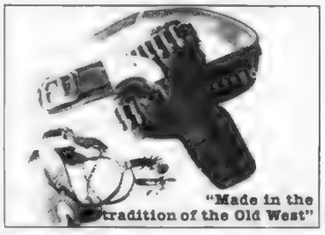

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8th Inf. Div. Airborne Ranger Cos. Viet-nam 75th Inf. (all): 1st, 2nd, 3rd, 21st, 24th, 61st, 62nd, 63rd, 64th, 65th, 66th & 4th. Cav. Divs.: 6th Cav. GP., 15th Cav. GP., 2nd, 3rd, 6th, 11th, 14th, 101st, 104th, 107th, 108th, 116th, 163rd ACR's. 6th Cav. BD.

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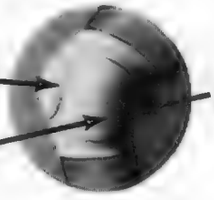

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BUFFALOED BILL

by Mike Blakely

Colonel William F. Cody had scarcely arrived in New York City from touring his Wild West show in Europe during 1890 when he received a telegram from an old friend. General Nelson A. Miles needed information about the Dakota Bad Lands. The Sioux were disgruntled with reservation life, and Miles sensed an Indian war brewing.

Cody caught the first train to Chicago and met with Miles over dinner to discuss the Bad Lands and the Sioux. As the general listened to Cody, he realized that Buffalo Bill not only knew the Bad Lands well, he knew the most dangerous Sioux leader, Sitting Bull, better than any other white man. Cody had scouted for Miles fourteen years earlier during the 1876 campaign against Sitting Bull. The chief later surrendered and performed in Cody's famous Wild West show. Sitting Bull's favorite horse was a big, grey circus pony given to him by the only white man he counted as a friend — Buffalo Bill.

General Miles scribbled a hasty set of orders authorizing the forty-four-year-old showman to proceed to the Standing Rock Indian Reservation (in present North Dakota), ride to Sitting Bull's camp, and "secure the person" of the chief.

Buffalo Bill didn't even take the time to change into buckskins. He rode the rails to St. Paul and then on to Bismarck. Still dressed in a suit, silk stockings, and patent leather shoes, Cody rode south along the Missouri to Fort Yates on the Standing Rock Reservation, arriving on the evening of November 27, 1890. Along the way he had picked up three friends and five newspaper reporters.

The wrong reputation preceded Buffalo Bill to Fort Yates. He had never scouted for the Eighth Cavalry or the Twelfth Infantry stationed there. The soldiers knew him mostly from dime novels and the glorified posters of his Wild West show. Now he showed up in banquet garb with a press entourage and a remarkable set of written orders.

James McLaughlin, the government Indian agent, was astounded by Cody's arrival. He wanted Sitting Bull arrested, too, but thought only the Indian Police could accomplish the arrest without bloodshed. In a panic, McLaughlin fired a telegram to the Commissioner of Indian Affairs asking that General Miles's order to Cody be overruled. But Washington was far away, and office hours were over. Cody could be rapping on Sitting Bull's lodgepole long before McLaughlin received an answer to his telegram. So the Indian agent conspired with Fort Yates army officers to prevent Cody from meeting with Sitting Bull.

Three young commissioned men invited Buffalo Bill into the Officers' Club. They kept the scout's glass full of whiskey and kept his ears full of questions. They inquired with feigned curiosity about his wild rides with the Pony Express. They questioned him at length on his years as a buffalo-hide hunter. They asked for every detail in the old campaigns against the Sioux.

When the first three officers started to feel the effects of the elbow- and ear-bending, another shift took over. The officers worked in relays. They aimed to see the great Buffalo Bill intoxicate himself with firewater and self-glorification until he couldn't even find his horse, let alone ride it.

The officers in the whiskey relay plied Cody with liquor well into the night, and Fort Yates was quickly running out of sober officers. Finally the legendary Colonel Cody excused himself, and the bleary-eyed officers breathed a sigh of relief, knowing the great scout would soon be snoring in his quarters. He would certainly remain there for much of the next day, giving the expected telegram from Washington time to arrive.

At dawn, to the utter chagrin of the officers in the whiskey relay, Colonel Cody was stomping about the compound, asking for escort and transportation to Sitting Bull's camp. The relay went into overtime but could delay Cody only until about 11:00 A.M. when he reined his horse toward the camp of the Indian chief.

Four hours after Colonel Cody started the forty-mile ride to Sitting Bull's camp on Grand River, McLaughlin received a dispatch from the President rescinding Cody's orders. An Indian rider overtook Buffalo Bill and his party before he had a chance to meet with his old Sioux friend.

The whiskey relay had indeed "buffaloed" Buffalo Bill, delaying him just long enough. The scout-turned-showman obeyed his orders and quit the field. He then turned his curly locks on Fort Yates, leaving behind an expense bill for over $500 and one hangover per officer.

About two weeks later, McLaughlin sent his Sioux policemen to arrest Sitting Bull. The resulting melee caused the death of the great chief, seven of his followers, and six Indian policemen. Cody could hardly have done worse.

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Mike Blakely *manages Blakely Features Syndicate, a nationwide newspaper service, and writes free-lance articles for several magazines.*

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BAUBLES & BANGLES

PHOTO BY ROBERT JAFFE

Wildlife Artist Carves Creative Elk Antler Jewelry

Oregon artist Don Burda hand carves his belt buckles and clasps for bolo ties from elk antlers, designing images of birds, fish, and large animals like bear, buffalo, and deer. For some pieces, he inlays the carved antler with silver, semiprecious stones, or crushed turquoise. Burda fashions bolo tie clasps from antler tips, while belt buckles are made from the crown of the antlers.

Burda gets most of his antlers from the Annual Boy Scout Elk Antler Auction held in Jackson Hole, Wyoming, which is supplied with thousands of dropped antlers gathered by Boy Scouts from the nearby National Elk Refuge. He first tried to make his carvings with the primitive tools American Indians once used but soon switched to power tools, working with a vacuum and a mask to avoid breathing the fine antler dust. He casts limited editions of his wildlife series in solid sterling silver, bronze, and, upon request, gold.

For the belt buckle pictured here, entitled "Badlands Battle," Burda first carved the scene and then colored it with waterproof ink. The 4¼" x 3½" piece was then sprayed with a sealant that repels water and dust. The skull in the background represents a Northern Plains Indian tradition of putting an animal skull out to attract the buffalo.

Burda began carving elk and deer antlers as a hobby while attending Southern Oregon State College, where he majored in anthropology and geology. Working on an archeological dig for a class, Burda was attempting to fashion arrowheads using antlers as tools when he decided to drill a hole in an antler crown and make it into a necklace for a friend. Later, while employed as a surveyor by the U.S. Forest Service and the Bureau of Land Management in northern California and southern Oregon, Burda collected dropped deer antlers he ran across in the wild and began selling his wildlife carvings on weekends at crafts fairs. In 1977, he moved to Wyoming, where dropped elk antlers abound. Captivated by his hobby, Burda decided to quit his job as a surveyor and concentrate on carving full-time.

Ten years later, the thirty-five-year-old North Dakota native has an established business, High Country Arts, in Medford, Oregon. He and his wife, Kitty, travel around the West taking part in wildlife art shows, where Burda says his antler belt buckles and bolos have gradually become more accepted as an art form.

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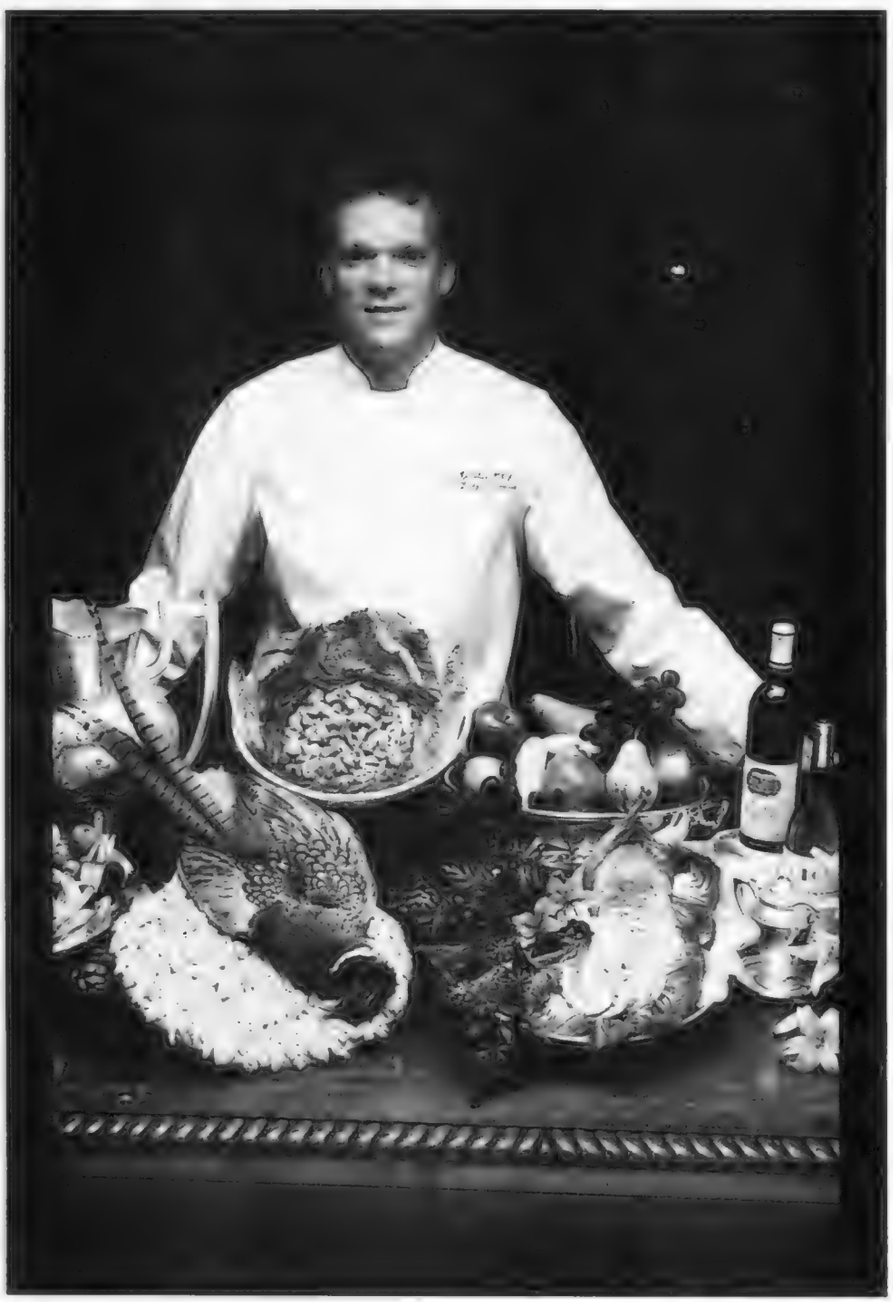

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Seattle Chef Blends European Cuisine with Pacific Northwest Delicacies

Ludger Szmania, the Executive Chef of Seattle's Four Seasons Olympic Hotel, calls the Pacific Northwest "a chef's paradise," drawing upon Mother Nature's local bounty as inspiration for his recipes. He relies on fresh, regional ingredients like shellfish from the San Juan Islands and quail from Oregon to create the cuisine of The Georgian, the Olympic's gourmet restaurant.

Szmania supervises forty people in the large kitchen, which serves the award-winning restaurants of the Four Seasons Olympic. This grand hotel has been honored with the American Automobile Association's Five Diamond Award for the third year in a row. It is the sole recipient of that rating in Washington State.

Chef Szmania began his culinary training as a *Commis Garde-manger*, or "food keeper," in Düsseldorf, Germany. He recently came to the Four Seasons Olympic from the Inn on the Park in Houston, bringing over thirteen years of experience in hotel kitchens. Tall and energetic, Szmania is dedicated to ensuring quality at The Georgian. Three times a week he visits Seattle's Pike Place Market, noting what vegetables and seafood are in season. He makes an effort to approve each dinner plate before it leaves the kitchen.

One of Szmania's innovative dishes served in the pale-peach-and-green-toned Georgian is his smoked Northwest salmon, which is prepared outdoors over fragrant alder, maple, or apple wood.

Planked Smoked Salmon with Apple Cider Sauce

The following items are needed:
About 6 one-by-one-inch chunks of apple wood for smoking
A smoker, which can be made from an old pot with a lid or from two aluminum roasting pans, for use on a barbecue
An oak board, six by eight by one-half inches
Ingredients for four servings:
four 6 oz. salmon fillets
coarse salt
brown sugar
pepper mill

Sprinkle one-half tablespoon salt, pepper to taste, and a dash of brown sugar on each piece of salmon. Refrigerate salmon for one and one-half hours. Brush salt off before smoking.

Heat the barbecue. Burn apple wood chunks halfway. Place salmon on the oak plank, which has been lightly brushed with olive oil. Place the plank in roasting pan or pot, add the burning pieces of wood, cover with another aluminum roasting pan or lid, and place on barbecue for 15–20 minutes.

Apple Cider Sauce

1 red delicious apple
6 oz. dry cider
1 oz. shallot, diced
3 oz. fish broth
1 oz. butter
4 oz. cream

Peel and core apple and cut into quarter-inch pieces. Cook apple cider with fish broth, reducing to half the original quantity. Sauté shallots in butter on medium high heat until tender, add apple, and cook for about one minute. Add the cider and fish broth mix and then the cream. Cook for about five more minutes on high heat, adding salt and pepper to taste.

COMING SOON IN American WEST

NATIONAL POLICE GAZETTE, 1883

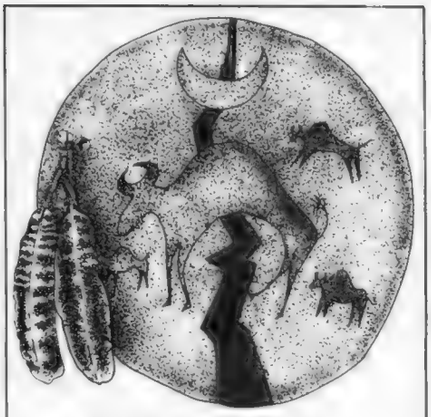
We'll salute **Arizona** on the seventy-fifth anniversary of her statehood. Prize-winning author C. L. Sonnichsen tells us about early Territorial days and explains why the Arizona region was called **"The Southwest Corner of Hell."** We'll also tell you about some fascinating and unusual places to visit in fabulous Arizona.

Where is the **buried treasure** from Victoria Peak? Puzzle over the true story of a bizarre struggle for a cache of **gold bars and ancient coins** discovered at the White Sands Missile Range.

Learn about the **Indian art of horse-painting** and the meaning of the symbols that American Indians painted on their ponies.

We'll consider some outstanding examples of **desert architecture** and see how they fit in with their surroundings.

Learn why **mules** are held in high esteem by many Westerners.



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WESTERN SNAPSHOTS YESTERDAY

The town of Tonopah, Nevada, is flying all its flags for this 1906 Fourth of July parade. A donkey-drawn wagon bearing a large photograph of a local politician leads the cavalcade. The many businesses and stores lining the street testify to Tonopah's booming silver mining industry.

Attracted by Tonopah's prosperity, the Brown family moved to town that year and opened a sundries store. Everything from Pig 'n Whistle candies imported from San Francisco to grand pianos could be purchased in their store. Customers could even have their laundry sent to Reno to be washed, starched, pressed, and returned on the next train. The Browns' son, Ellis, was twelve when he took part in these Fourth of July festivities.

When Ellis was sixteen, he assisted in the set up of Tonopah's first lighting system by helping to lay gas lines into local businesses and homes. Ellis was a trusted employee and knew how to run the entire gas plant. In charge of troubleshooting, he was responsible for keeping the plant in order.

Most likely, Ellis was in the crowd that Fourth of July that gathered around for the annual drilling contest. The area miners showed off their skill by competing in timed trials to determine who could drill a hole in a huge stone the fastest.

Ellis Brown's daughter, Carol Filipponi of El Cajon, California, sent us this partriotic snapshot of Tonopah's boom days.

AMERICAN WEST offers twenty-five dollars to any reader whose Western Snapshot Yesterday is accepted for publication on this page. We seek old photographs that tell stories of bygone times. We'll take good care of your pictures and return them promptly. Be sure to pack the snapshots carefully and enclose a stamped, self-addressed envelope. Send submissions to AMERICAN WEST, Western Snapshots Yesterday, 7000 E. Tanque Verde Rd., Suite 30, Tucson, Arizona 85715.

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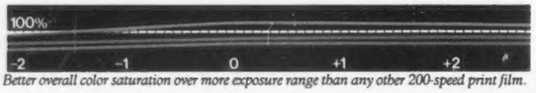

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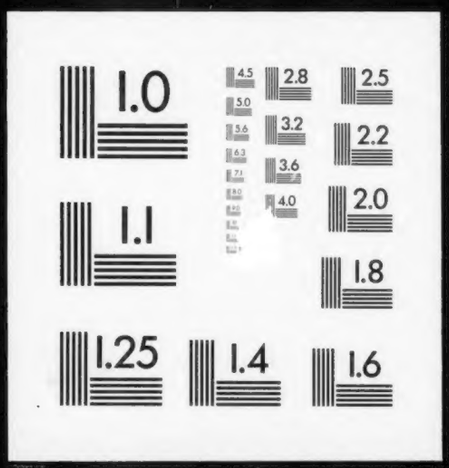
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